AMERICAN

DYESTUFF REPORTER

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Official Publication of the Proceedings of the American Association of Textile Chemists and Colorists

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for wool and mixtures

BRIGHT

NEW

EXCLUSIVE

NATIONAL ALIZARINE VIOLET NRR

A natural for dress goods, coatings and suitings . . . a valuable shading color for Government specification cloth, National Alizarine Violet NRR possesses brightness and fastness unusual in the violet area of the spectrum.

Non-dusting, anthraquinone acid dye, National Alizarine Violet NRR has very good fastness to light, alkalis and sea-water bleeding; excellent fastness to stoving, water spotting, cold water bleeding, carbonizing and crocking.

With very good solubility and excellent level-dyeing properties, it should be applied to wool from a weakly acid bath, although it also dyes well from a neutral bath. Silk effects are dyed slightly less and nylon effects slightly more than wool. Cotton, viscose and acetate effects are only slightly stained.

SEND FOR TECHNICAL BULLETIN #367

Our nearest office will be glad to send you a copy of this new technical bulletin which shows complete fastness ratings and dyeings on worsted yarn and wool-cotton piece goods.

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Proceedings of the

American Association of Textile Chemists and Colorists

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Editor of Proceedings: Carl Z Draves, 30 Lahey St, New Hyde Park, N Y

APRIL 28, 1952

CALENDAR

COUNCIL
June 13 (New York); September 19 (Philadelphia); November 6 (Boston)

GENERAL RESEARCH COMMITTEE
(See Council dates)

NATIONAL CONVENTIONS
November 6-8, 1952 (Hotel Statler, Boston); September 17-19, 1953 (Hotel Conrad Hilton, Chicago); 1954 (Atlanta, Ga).

HUDSON-MOHAWK SECTION
May 2 (Jack's Restaurant, Albany); June 20 (Annual Outing).

MID-WEST SECTION
June 14 (Lake Lawn Lodge, Delavan, Wis); October 4 (Hotel Bismarck, Chicago).

NEW YORK SECTION
May 16 (Swiss Chalet, Rochelle Park, N J); June 13 (Outing, North Jersey Country Club, Wayne, N J).

NORTHERN NEW ENGLAND SECTION
May 16 (Andover Country Club, Andover, Mass); June 6 (Outing, Merrimack Valley Country Club, Methuen, Mass); December 6 (Annual Meeting, Lowell Textile Institute).

PHILADELPHIA SECTION
June 13 (Outing, Lu Lu Temple Country Club, North Hills, Pa).

PIEDMONT SECTION
June 6-7 (Ocean Forest Hotel, Myrtle Beach, S C); Sept 13 (Hotel Charlotte, Charlotte, N C).

RHODE ISLAND SECTION
May 23 (Providence Engineering Society); June 6 (Outing, Wannamoisett C C); Oct 24 (Providence Engineering Society); December 5 (Annual Meeting, Sheraton-Biltmore, Providence, R I).

SOUTH CENTRAL SECTION
May 17 (Patten Hotel, Chattanooga, Tenn); Aug 22-23 (Outing, Chattanooga Golf & Country Club); December 6 (Patten Hotel).

SOUTHEASTERN SECTION
May 3 (Ralston Hotel, Columbus, Ga); June 6-7 (Outing, Radium Springs, Ga); Sept 13 (Biltmore Hotel, Atlanta).

WESTERN NEW ENGLAND SECTION
May 2 (Ladies Night, Chase Country Club, Waterbury, Conn); June 20 (Outing); Oct 3, Nov 14 and Dec 12 (Rapp's Restaurant, Shelton, Conn).

LAPEL BUTTONS FOR MEMBERS

These buttons bear the seal of the AATCC and may be purchased by members in good standing from the National Secretary at $2.00 each.

DR HAROLD C CHAPIN
Lowell Textile Institute
Lowell, Massachusetts

OTHER EVENTS

ACHEMA X
Exhibition Meeting for Chemical Engineering, May 18-25, Frankfort/M, Germany.

AMERICAN CHEMICAL SOCIETY
7th National Chemical Exposition, Sept 9-13, Chicago Coliseum, Chicago, Ill. This will include the 2nd International Art Exhibit.

AMERICAN OIL CHEMISTS SOCIETY
Forty-third Annual Meeting, April 28-30, Shamrock Hotel, Houston, Texas
Short Course industrial trips, July 8-9, 10-11.

AMERICAN SOCIETY FOR QUALITY CONTROL
Sixth Annual Convention, May 22-24, Syracuse, New York.

AMERICAN SOCIETY FOR TESTING MATERIALS
Annual Meeting, June 23-27, 1952, New York, N Y. (The biennial Apparatus and Photographic Exhibits will be held in conjunction with this meeting).

AMERICAN STANDARDS ASSOCIATION
3rd National Standardization Conference, Sept 8-10, Museum of Science and Industry, Chicago, Ill.
34th Annual Meeting, November 19, Waldorf-Astoria, New York, N Y.

AMERICAN TEXTILE MACHINERY ASSOCIATION
Exhibit of American Textile Machinery, April 26-May 1, 1954, Atlantic City Exhibition Hall, Atlantic City, N J.

BRITISH INDUSTRIES FAIR
May 5-16, London and Birmingham, England.

CANADIAN TEXTILE SEMINAR
September 11-13, Queen's University, Kingston, Ont.

FIBER SOCIETY
Sept 10-11 (Princeton, N J).

INTERNATIONAL ORGANIZATION for STANDARDIZATION
Meeting of Technical Committee 38 (Textiles), Subcommittees 2 (Shrinkage of Fabrics in Washing) and 6 (Fiber Testing)—June 13, 14 and 16, Columbia University, New York, N Y.

LEIPZIG FAIR
September 7-17, Leipzig, Germany.

NATIONAL ASSOCIATION OF HOSIERY MANUFACTURERS
41st Knitting Arts Exhibition, April 27-May 1, 1953, Atlantic City Auditorium, Atlantic City, N J.

NEW YORK BOARD OF TRADE
26th Annual Meeting: September 25-28, Pocono Manor Inn, Pocono Manor, Pa.

PHI PSI FRATERNITY
49th Annual Convention, May 1-3, Clemson House, Clemson, S C.

PURDUE INDUSTRIAL WASTE CONFERENCE
May 7-9, Purdue Memorial Union, Purdue University, Lafayette, Indiana.

SOCIETE DE CHEMIE INDUSTRIELLE
25th International Congress for Industrial Chemistry, May 18-25, Paris, France.

TEXTILE INSTITUTE
Annual Conference, June 2-6, Edinburgh, Scotland.

EMPLOYMENT REGISTER

This column is open for two insertions per year, per member, without charge. Blanks can be obtained from, and filed with, the Secretary of the Association. Lowell Textile Institute, Lowell, Mass. It is understood that these will be open to inspection by prospective employers who can obtain further information from the Secretary.

52-14
Education: B S Textile Chemistry & Dyeing; M S Organic Chemistry.
Experience: Textile research chemist.
Age: 27; single; references; New England preferred but not essential.
4-28, 5-12

1952
NATIONAL CONVENTION

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HOTEL STATLER
BOSTON, MASSACHUSETTS
NOVEMBER 6-8

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AUSPICES OF
NORTHERN NEW ENGLAND SECTION

Report of New York Section Meeting

March 21, 1952
Fairleigh Dickinson College,
Rutherford, New Jersey

A MEETING of the New York Section was held on Friday evening, March 21, 1952 at Fairleigh Dickinson College, Rutherford, New Jersey. A dinner, preceding the meeting, was served in the college dining room.

The Student Chapter at the College was host for the evening and Raymond Rotsaert, Chairman of the Chapter, extended greetings and presented the officers and members of the Chapter. Dr Peter Sammartino, president of the College, also greeted the members and announced the establishment of a scholarship by American Aniline Products, Inc to be awarded for the use of a textile student. Francis S Richardson, Waldrich Company, served as toastmaster and introduced Herbert R Mauersberger, Chairman of the Textile Department of the College, who discussed briefly the curriculum and the new Hesslein Textile Building. Also speaking briefly was Dr Carol Weill, a member of the faculty.

Several musical numbers were presented by the Male Chorus of the College.

The attendance was approximately 150.

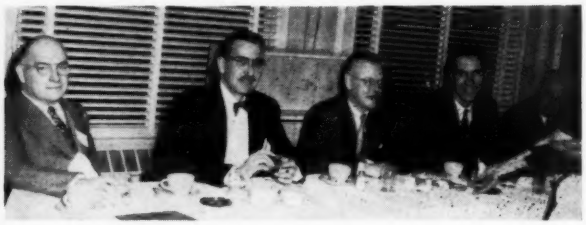
Respectfully submitted,
NORMAN A JOHNSON, *Secretary*

Several members of the Fairleigh Dickinson College Student Chapter pose with Herbert R Mauersberger, Chairman of the Textile Department, at the March 21st meeting.

(L to r): H R Mauersberger; Ralph M Fischer, N Y Section Councilor; Carl H Brubaker, N Y Section Councilor.

(L to r): Raymond Rotsaert, Chairman, FDC Student Chapter; James J Marshall, N Y Section Treasurer; Francis S Richardson, Toastmaster; Dr Peter Sammartino, FDC President; Paul J Luck, N Y Section Chairman.

(L to r): P J Wood, Past President, AATCC; Dr Carol Weill, FDC Chemistry Director; Dr Herman E Hager, N Y Sectional Committee; Charles Minoff, FDC Faculty.



(L to r): Warren Duncan, FDC Placement Director; F L Bume; J H Hennessey, Technical Program Committee (N Y Section); Weldon G Helmus, Vice-Chairman and Councilor (N Y Section); Patrick J Kennedy, N Y Sectional Committee.

Meeting Report— NBTI Student Chapter

THE New Bedford Textile Institute Student Chapter held a meeting on March 10, at which Kenneth H Barnard, Textile Resin Dept, American Cyanamid Company, was the chief speaker. His topic was "Textile Resin Finishes", which covered the shrinkage control, crease resistance and water repellency of fabrics when treated with resin finishes. Supplementing Mr Barnard's talk was a film entitled, "It's All in the Finish."

Respectfully submitted,
FRANCIS A HOFFMAN, *Secretary*

Meeting Report— Western New England Section

March 14, 1952
Rapp's Restaurant, Shelton, Conn

A MEETING of the Western New England Section was held on March 14, 1952 at Rapp's Restaurant, Shelton, Conn. An excellent turnout of 73 members and guests was present to hear D D Gagliardi of the Warwick Chemical Co give a talk on "Chemical Modification of Textiles". The speaker described a number of chemical treatments by which special compounds can be chemically reacted with textile fibers to alter their chemical, physical and mechanical properties and impart desirable functional properties to fabrics. While these processes are in a laboratory stage at present it was indicated that larger scale availability of the necessary chemicals and refinements in application techniques could make them of commercial importance. An interesting question and answer period followed the talk.

In a short business meeting, reports were made by the secretary and the treasurer and also by N J Glade, chairman of the membership committee.

Respectfully submitted,
A S NYQUIST, *Secretary*

30th Annual Convention
Mailed Questions and Answers——

PART II—MIXED-FIBERS SYMPOSIUM

J R BONNAR, *Moderator*

The questions for which there was not sufficient time for answering at the public symposium on mixed fibers on the afternoon of October 18, 1951, in New York were mailed by the moderator, J Robert Bonnar, to the members of the panel who had participated. The names of these experts in the field of mixed fibers were listed in the report of the oral part of the symposium given as Part I in the last issue.

Answers have been submitted after leisurely deliberation by panel members only for those mailed questions for which they considered themselves especially qualified.

Question 1: The synthesis of an ideal fiber blend for a given purpose will presumably depend on the knowledge of the contribution each fiber will make to the physical properties of the blend. Please discuss the present status of information on physical properties of individual fibers, and the ability to produce a blend of "tailor-made" physical properties.

Answer: The producers of the various synthetic fibers have gone to great pains to produce pamphlets covering the various properties of such fibers. *Textile World* for the past several years has produced annually a chart on new synthetic fibers listing in detail their various properties. It would seem that the information as to the properties of various fibers is available. It remains for the manufacturer to correlate these properties for blends with intended end use.

A: Fiber manufacturers are making rapid progress in their studies of the physical properties of individual fibers and their influence on blending. This information is by no means complete as evidenced by the statements of the further studies that are planned, such as the effect on body comfort, etc. Constructive results are being obtained by means of the cooperation of the fiber manufacturer, designer, weaver, dyer and finisher.

Information on the physical properties of individual fibers is relatively well known. The ability to produce a blend of "tailor-made" physical properties has still a long way to go. However, many strides have been made in the introduction of blended yarns into fabrics, as has been exhibited by the large variety of blended fabrics that are appearing on the market. The technologist has at his command sufficient information about fiber properties properly to design yarns and fabrics to meet specific end-use requirements.

In addition to this, there are a number of mechanical and chemical modifications that can be introduced at the finishing level that will produce the desired aesthetical and functional requirements to meet consumer desires. Particularly for the apparel field, the knowledge and information in the hands of the textile technologist and textile chemist are sufficient to meet the end-use requirements or specifications desired. That this is not always effected now is due in great part to the economics involved as translated by the garment makers and buyers as to what the consumer will pay.

On the other hand, in the industrial field, there are still many avenues to follow with respect to the proper translation of physical properties of individual fibers and what they will do in yarns and fabrics. Much work has been done in the engineering approach to proper design of yarns and fabrics by knowing the chemical and physical properties of the individual fibers, and both the theoretical and observed results by laboratory tests show good agreement. The biggest gap is the interpretation between the laboratory and the actual serviceability of the material, and this is the area in which the textile technologist is now concentrating his attention in order to be in a better position to predict what can and should be expected from a given fiber and blend of fibers in a particular fabric, and what it will do in service.

A: Physical properties of individual fibers are reasonably thoroughly covered in the textile literature. Properties of the newer synthetics would probably be best obtained by contacting the different manufacturing companies. However, the science of predicting properties of blended yarns from an examination of the properties of the individual fibers incorporated in the blend has not yet been well developed. It is known that certain properties, as for example, work recovery and crease recovery, are simple, straight-line functions, directly dependent upon the values for the fibers making up the blend. However, most properties of a blended yarn, including tenacity, break elongation, modulus, and abrasion resistance, are generally not such simple, straight-line functions of composition. Thus, a 50/50 blend of viscose rayon and nylon gives a yarn whose tenacity is less than midway between that of yarns of 100% viscose and 100% nylon, but the abrasion resistance of the blended yarn is considerably greater than the average for 100% viscose and 100% nylon. As our knowledge of these complex relationships increases, it should make it possible to produce blends of "tailor-made" physical properties.

* * *

Q 2: When will we meet the challenge of finding a better word than "man-made" for all man-made fibers, and how will we solve the problem of fiber identification by law with all of the new fibers coming into the market?

A: We will meet the challenge of finding a better word than "man-made" for all man-made fibers, when some one of us proposes a word acceptable to all interests. There is a strong desire for such a word here and abroad. The International Organization for Standardization has urged its members to suggest a word. Numerous words have been proposed but none so far that has been generally acceptable because of objectionable connotations, lack of simplicity, distinctiveness or appropriateness. The numerous new and unique names of particular fibers have a satisfying flavor for their purpose and suggest that the word for "man-made" fibers will come when sufficient thought is put to it.

The problem of fiber identification by law will, in my opinion, be reached by agreement on generic names for brands of fibers having essentially the same chemical basic structure and therefore similar properties. ASTM Committee D-13 develops standard definitions of textiles which are generally accepted and will, with the help of the manufacturers and users, provide

the generic names of new fibers for law makers.

A: The solution to this problem will be a matter of education. In the first place, it will be necessary to develop procedures for the analysis of synthetic fibers in blends. Individual fibers will come to stand out on the basis of their properties and the name assigned to them. We may expect, with time, the differentiations will be met in line with the present Federal Trade Commission designations of the cellulosic fiber (viscose vs the acetate fibers). This will not be possible until more information is available on the properties of these newer individual fibers.

The challenge of finding a better word than "man-made" for man-made fibers is one that has been given serious consideration by the industry for sometime. As a matter of fact, ASTM Committee D-13, Subcommittee B-2 has had this problem on its agenda for many years. Some of the requirements for a good name are (1) that it must be euphonius; (2) that it should be short; (3) that it must connote a fiber or fibers; and (4), and probably the most important, it would have to be a name that all those in the industry could agree upon. Inasmuch as there has been a tendency for names to be coined to denote specific fiber types, it is quite probable that the over-all general term "man-made" can remain as is, and distinct from natural.

With respect to the second part of the question concerning how we will solve the problem of fiber identification by law with all the new fibers coming into the market, it does not appear that identification by law is the solution. Briefly stated, the mandatory identification of the fiber or fiber content of a fabric does not necessarily tell the consumer exactly what the fabric or garment he or she buys will do. The properties of the fibers with proper manufacturing into yarn and proper weaving with proper finishing are basically an integrated product. Beyond that, the proper manufacturing of garments with the use of proper ornaments, button and sewing thread further complicate the article which a consumer buys, and just to state that a particular garment contains such and such a percentage of a fiber or a given number of fibers is not a guarantee that the material that is bought will perform in any particular way. What is actually needed on any garment would be a set of maintenance specifications. If such specifications were placed on the garment, then, irrespective of fiber type, the consumer could be satisfied or have a basis on which to come back to the retailer and make a justifiable claim.

A: The Definitions Committee of the American Society for Testing Materials has considered more than a dozen specific suggestions during the last few years. None of these, however, has met with sufficient response to warrant promoting it in place of the phrase "man-made fibers". While the latter phrase has proven satisfactory to most people in this country, it is quite unacceptable abroad because of difficulties following translation into other languages. In view of this condition, the International Standards Organization has the subject of a proper class name for all genera of man-made fibers on their agenda. Any suggestions will be welcomed and will be given careful consideration by both ASTM and ISO.

* * *

Q 3: What is your opinion as to the future of filament versus spun-staple-fiber goods?

A: In our opinion there will always be a place for both types of fabrics. Fabrics made from continuous-filament yarns and those made from spun staple each have different characteristics, and, so long as the consumer demands variety, there will be a place for each type of fabric.

A: Continuous-filament yarns are firmly entrenched in the wearing-apparel trade. Their future is not expected to be affected by spun yarns. Filament yarn produces surfaces and textures which are desired in the styling of dresses and lingerie. These effects are not possible with spun yarns.

* * *

Q 4: In blended and mixed synthetic fabrics, how do you compensate for the unevenness in tensions to obtain quality-control shrinkage?

A: It is necessary to work out a process for a fabric and to adhere to this method in future processing. By means of plant control, corrections may be made for any variations due to uneveness in tensions which should be maintained as nearly constant as possible.

* * *

Q 5: What characteristic does an application of nylon Type 8 add to viscose rayon?

A: It is doubtful if Type 8 nylon adds any valuable characteristic to viscose rayon other than stiffness, and, as the application requires the use of solvents (Type 8 nylon having no affinity for viscose from the usual emulsions) and the chemical itself is high priced, this effect can be obtained more economically by other means.

* * *

Q 6: Identification of fibers in mixtures, especially dyed blends or wastes, has become very difficult. Can you recommend simple, quick qualitative methods?

A: The ASTM and the AATCC have committees working on methods of analysis, qualitative and quantitative, of fiber mixtures. Put your needs to these organizations and support the work of the committees and answers will be forthcoming.

A: No simple identification test has been developed as yet for the identification of synthetic fibers in mixtures. Cross-sectional work is required and a knowledge of dyeing properties. Further work is required on this subject.

A: I have found that the quickest identification of fibers in mixtures and also the most accurate is by cross-sectional microscopic analysis. With modern apparatus this can be done very quickly, and the picture of the fibers as shown on the microscope can be projected, making the fibers in the mixtures readily discernible.

A: A method that is fairly complete and covers nylon, Orlon acrylic fiber and Dacron polyester fiber, as well as the older and more conventional fibers, will be found in the *1951 Technical Manual and Yearbook of the AATCC* pp 106-119.

* * *

Q 7: Does Dynel, Dacron or Orlon require any heat setting when used in a blend with wool, viscose, or acetate?

A: Heat setting of mixed fiber blends generally adds little or nothing of value to the fabric, and may, with Dacron or Dynel, cause cockling because of shrinkage differences.

A: This may depend on the amount of Dynel, Dacron or Orlon utilized as well as on the construction of the fabric. In general, Dynel will require a relustering accomplished either by an addition of salt to the dye bath or a heat treatment at 240°F. This relustering may be considered in the nature of a heat setting. In general, it would not seem to be necessary to heat-set Dacron or Orlon. On the other hand, such an operation may be necessary in the case of Dacron to obtain the particular finish.

A: Blended fabrics containing Dacron polyester fiber with wool, rayon, or acetate are not customarily heat-set by hot-roll or other specific processing as is done with continuous-filament fabrics containing Dacron. Instead, conditions of the scouring and dyeing operations used for worsted, woolen, and spun-rayon fabrics are, in general, adequate to stabilize these cloths when Dacron is used in the blend.

* * *

Q 8: What effect does heat-setting nylon, Orlon, and Dacron fabrics have on tensile strength and tear strength?

A: Improper heat setting on nylon can cause great losses in both tensile strength and tear resistance, but, if properly controlled, only insignificant losses result. Orlon is very resistant to strength losses for one-minute exposures up to temperatures of 450°F.

A: According to our understanding, heat treatments on relaxed goods are supposed to increase the strength of spun fibers and decrease the strength of filament fibers. If the setting is done under tension, probably no loss would occur in filament fibers.

A: A heat setting of nylon that is considered adequate for the great majority of end uses can be done without a significant loss in strength. Times and temperatures are somewhat critical. If the time is considerably too long or the temperature much too high, a significant deterioration in the strength of nylon will be experienced.

Tear is a different type of thing. If heat setting drives off a lubricating oil or changes its nature so that the threads are less slippery on each other, or if shrinkage is great enough to pack the threads in tighter against each other to give a more compact fabric, the tear strength may be greatly decreased. It may be increased again somewhat by adding a good finish for lubricating the threads. Avitex R or Zelan treatment might effectively do this.

A proper heat setting of fabrics of Dacron does not change substantially the high tensile and tear strength of these fabrics. Some change in the exact values between the greige and finished states ordinarily will be found, and the degree and nature will be dependent on the finishing operation used. For example, tenter finishing with shrinkage restrained may actually increase the tensile strength of a curtain marquisette. Other finishing techniques may either increase or decrease tensile and tear strengths of fabrics of Dacron in accordance with the degree of relaxation achieved and the change in fabric density due to shrinkage.

With respect to Orlon acrylic fiber, since heat treating is only very infrequently required, not many data are available on the effect of tensile and tear strengths of the fabric. It is believed that the effects would be slight.

* * *

Q 9: What has been done to increase water absorption of synthetic fabrics by means of blends, where such absorptivity is desired?

A: There is no doubt that the textile industry is vigorously attacking a study of properties of blended fabrics, but such an approach to fabric improvement is in its infancy and little can be said of results to date. Blending synthetic fibers that absorb little water with fibers that are absorbent is a perfectly logical approach to preparing absorbent fabrics, but it is not known whether anyone has studied blends with this particular goal in mind. It might be mentioned, too, that in many of the cases in which fabric water absorption is desirable, *ad*sorptivity may accomplish the desired result equally as well as *ab*sorptivity. The textile industry is just beginning to study effects of altering fiber-surface-wettability characteristics, or *ad*sorption in contrast to *ab*sorption.

A: It is common practice to blend a more absorbent synthetic, man-made or natural fiber with a hydrophobic synthetic fiber to increase absorbency. For example, Vicara, rayon, or wool may be blended with nylon. Finishers also try to improve absorbency and feel by the use of absorbent resin finishes.

* * *

Q 10: How is the little woman mentioned by J Spencer Love to remember all these blends, fiber names, and finishes?

A: She will get to know about the various fibers and blends from an educational program by the producers of fibers and fabrics. It is always desirable that both the retailer and ultimate consumer be quite fully informed about the proper use of fabrics made from various fibers and their blends. Such information must necessarily be imparted by an honest educational advertising program and by proper labeling.

A: An educational program will be required. In the ultimate analysis, the consumer will be more interested in the results obtained in the finished product. Styling and siutability for the end use will be considered.

A: All the blend, fiber names and finishes that Mr Love discussed in his address, "From Wonder Fiber to Wonder Fabric, a Challenge to Management", certainly cannot be remembered by the "little woman" who does the purchasing. The "little woman" must depend on the retailer for information. An intraindustry educational program is needed so that the sales person can be educated to pass on the information to the consumer. One way, as mentioned previously, is that if each fabric contained or each garment possesed some means of identification with reference to the maintenance specifications, that is, how to take care of and what to expect from that particular garment, this would minimize the number of blends, fiber names and finishes that the ultimate consumer would have to memorize.

On the other hand, a certain amount of memorizing or being familiar with names is necessary by the consumer, as in the homely example to be given; a consumer certainly knows the difference between hamburger, sirloin, top round and filet mignon when she is buying steak. I believe that the best guide for a consumer, instead of trying to remember all the blends and fiber names and finishes, is to deal with a reliable retailer and to depend as much as she can on those trade-marks that reliably indicate quality.

* * *

Q 11: How can the consumer's actual experience with your fabric (favorable or unfavorable) be brought to your attention and guidance for change when necessary? In short, do you hear from store buyers about customer reactions?

A: There is usually little difficulty in getting the consuming public's reaction to new things, be they fabrics, garments or mouse traps. There is, however, always the reaction of a consumer not particularly liking something new because it is not like the product to which he has become accustomed. He is prone, therefore, to find fault rather than to praise new qualities; and therefore, early criticism cannot be taken too seriously. Nevertheless, all criticisms must be carefully considered to decide how justified they are and to see what can best be done to overcome just criticisms.

A: When a fabric is not suitable for a use to which it has been applied, that merchandise will be returned to the store by the customer. The buyer, in turn, if there is wide-spread dissatisfaction, will certainly return the merchandise to the manufacturer. Hence, there is little doubt that such trouble will be called to the attention of the manufacturer.

A: Consumer evaluation tests are becoming more and more important as a guide for production.

A: A simple way to get consumers' actual experience is to get from the retail store the names and addresses of those people who have bought some certain article that you want to get a reaction on and then to send to each consumer a letter containing a small, inexpensive gift and a request to write or fill out a blank with her reaction. This has been tried and the replys and reactions have been astounding.

If a consumer wishes to bring to the attention of a fabric manufacturer any complaint or any good point of a particular garment, it is best done through the retailer. If the retailer does not give satisfaction, then the only recourse she has is to bring it directly to the manufacturer if there is some means of identification on that garment to guide her. In short,

the question of whether we hear from store buyers about consumer reaction can be answered by saying that we do, but that in many cases the consumers themselves do not bring back to the store or to the manufacturer of the goods any comments concerning the article that has been bought. If consumers were to take the time to bring their complaints and comments to retailers and to manufacturers of garments, they would help the industry in finding out what fabrics give satisfaction.

* * *

Q 12: We have been told that the creation of wonder fabrics takes years. How can we prevent the press from garbling the story about a new development during the necessary time of experimentation?

A: To prevent the press from running away and garbling a story during the time of experimentation, it has been my experience that no stories should be given to the press during any experimentation. The experimentation should be done first; then press releases will be in order. Also, fiber producers should be more careful of publicity about their new fibers before mills are ready for production and especially before dyeing problems have been solved.

* * *

Q 13: Has anyone compiled figures on the thermal insulating values of any series of warmer synthetic apparel goods after repeated washing?

A: This subject is believed to be a part of the research work now being carried on by the larger synthetic-fiber manufacturers.

A: It is not known whether anyone has studied thermal insulating values of synthetic fabrics after repeated washing. However, there are innumerable references in the literature which indicate that thermal insulation of a fabric is a direct function of fabric thickness, irrespective of the properties of the fibers making up the fabric. This is because the insulating medium is the layer of immobilized air entrapped by the fabric, and even rather densely woven fabrics contain, volumewise, more than 50% air. Any factor that might influence fabric thickness, as repeated washing, would be expected to affect thermal insulation of the fabric in proportion to the change of thickness. In this respect, resilience, as it influences recovery of thickness after deformation, should be important.

* * *

Q 14: Can we dye solid shades on a Dacron textile if it contains a small proportion of nylon and/or Orlon. How can nylon and/or Orlon be separated physically from Dacron?

A: At present there is no way of dyeing solid shades on fabrics containing Dacron and nylon. Dacron and Orlon can be dyed union, but the method is expensive and of doubtful practical value. This would involve dyeing the Dacron with a carrier and then dyeing the Orlon by the cuprous-ion technique.

Nyon, Orlon and Dacron could probably be separated physically by the differences in specific gravity, but this is a laboratory method and would be very expensive to carry out on a practical scale.

A: Dacron fabrics containing a small amount of nylon may be dyed in solid shades by application of acetate colors with a carrier, such as benzoic acid. This will result in the desired shade on the Dacron, but the nylon undoubtedly will come up heavier in shade. By scouring the fabric at 180-200°F, it should be possible to remove a considerable amount of the color from the nylon without affecting the shade of the Dacron.

Dacron fabrics containing small amounts of Orlon may be dyed similarly, except that acetate colors applied with a carrier will dye the Dacron much heavier than the Orlon. The shade on the Orlon undoubtedly can be adjusted by application of acid dyes by the cuprous-ion method. The Dacron will not be stained by the acid colors.

In regard to the separation of synthetic fibers by physical methods, we know of only one means of doing this, namely, the method of dissolving one or the other fiber in a mixture. Orlon is soluble in dimethylformamide and practically insoluble in phenols. Dacron and nylon are both soluble in phenols.

* * *

Q 15: What are some of the factors that determine what per cent of Dacron should be present in a Dacron-wool blend?

A: Factors which determine the amount of Dacron polyester fiber that should be used in a blend with wool are such fabric properties as degree of wet as well as dry wrinkle resistance, dimensional stability in wearing and cleaning, durability, handle of fabric, etc. In general, one may say that, for winter-weight fabric, blends of 30 to 65% Dacron represents an excellent operating range. For summer-weight fabric, blends containing 55% and more of Dacron should be used to obtain the optimum functional performance.

* * *

Q 16: On warp-flush-spun-rayon fabrics, will the addition of a small per cent of nylon in the warp yarn appreciably increase abrasive resistance for outer wear?

A: A small percent of nylon will generally increase the abrasion resistance, but other factors may have an equal or even greater effect, such as construction of fabric, the position and length of nylon staple in the blend, finish used, or the type and amount of lubricant on the fabric.

A: A small percentage of nylon blended in a spun-rayon fabric gives a large increase in abrasion resistance.

A: The addition of a minimum of 15% of nylon in a warp-flush-spun-rayon fabric increases the abrasive resistance tremendously.

* * *

Q 17: What causes Dynel to shrink in the dyeing of dark shades?

A: Swelling agents increase the tendency of Dynel to shrink. In the dyeing of dark shades, such agents are employed in greater amount.

A: The impression that Dynel will always shrink excessively when it is dyed in dark shades should be corrected. The normally anticipated shrinkage of Dynel in the dyeing of dark shades is of the order of 5% when the dyeing is done by recommended procedures. Care should be exercised in the selection of dyestuff and in the use of larger amounts of the assistant, p-phenylphenol. Certain of the darker acetate colors in higher concentration also have a swelling or solvent action on the fiber and may cause some shrinkage.

* * *

Q 18: Can blends of Acrilan and wool be dyed in the piece?

A: Wool takes up dye at the expense of Acrilan. However, by the use of acetate and wool dyes and carriers, or swelling agents, solid shades can be obtained in specific cases.

A: The fastness to light and washing of such dyeings will be poor because the low affinity of Acrilan for acetate dyes will cause excessive staining of the wool by these dyes, which have poor fastness properties on wool.

A: Yes, they can be dyed in the piece, with, however, some reservations. Such blends require an acetate dye for the Acrilan and neutral acid dyes for the wool. As the acetate dye tends to stain the wool, such piece dyeing is naturally restricted to light and medium shades, and the fastness, however, is none too good.

A: At the present time, blends of Acrilan-Wool cannot be dyed in the piece to meet men's-wear requirements. It may be

possible to produce a limited number of shades through the use of acetate dyes with a swelling agent together with wool dyes for bringing the wool up to shade. Such shades must be checked for fastness properties, inasmuch as only selected acetate colors have suitable light fastness on the Acrilan and the staining of the wool by the acetate dye may affect the fastness to perspiration.

A: The piece dyeing of such blends is not possible because wool has a much greater appetite for the colors applicable to Acrilan. It has been observed in attempting to dye such blends that the wool absorbed about 90% of the available dyestuff. Of course, the difference in dye takeup will vary with the composition of the fabric, the Acrilan in a 15% combination with wool absorbing much less color than the Acrilan in a 50% combination or blend.

* * *

Q 19: Is crimped viscose staple hazardous toward fire in heavily napped floor coverings?

A: The many tests that have been made in this connection have never shown that dropping a blazing match or glowing cigarette onto such a floor covering causes an actual blaze. Of course, the place or spot where the burning match or cigarette has fallen will be scorched and discolored. But this is equally true of similar floor coverings made with piles of other materials.

* * *

Q 20: Can Dynel be dyed satisfactorily in the presence of other fibers?

A: In general, the answer to this question is "yes". We cannot say that we obtain dye unions satisfactorily on all blends of Dynel with all other fibers, but our experiences in the laboratory and in commercial runs have indicated substantial progress in the project of union dyeing.

Cotton or viscose blends of Dynel: In a one-bath procedure we have satisfactorily used acetate or acid-type colors for Dynel and direct colors for the cellulosic fibers. In some cases where fastness requirements are more rigorous we have employed a two-batch procedure, with vats for the cellulosic fibers and acid colors for the Dynel.

We do not now have procedures for the union dyeing of Dynel and acetate fibers. The occasion has not arisen where one was required. A two-bath method is indicated. The Dynel would be dyed with acid colors and then the acetate would be dyed at temperatures not exceeding 185°F. Some reduction in the tensile strength of the acetate fiber may occur from the action of the swelling agent used to dye the Dynel.

For blends of Dynel wth Vicara or with nylon, good unions have been secured with formulations of selected acetate colors.

Our research on dyeing blends of Dynel with wool is progressing well. We have been successful in developing a fairly wide range of medium and pastel shades with selected acetate colors, and some success has been reported by others in the use of the procedure of dyeing the wool with metallized acid colors followed by dyeing the Dynel with acetate colors. Stock or top dyeing wool and Dynel separately, the latter with acid colors, and then blending the fibers in processing are preferred where fastness requirements are rigorous.

The cuprous-ion technique for dyeing Dynel cannot be employed in the case of blends of Dynel with wool, or Vicara, or nylon.

A: Dynel can be dyed union in combination with viscose rayon or cotton, but not with other fibers.

Cross dyes may be obtained with Dacron or acetate. In the first case the Dacron would remain undyed; in the second, color and color could be obtained, but the combinations would be limited.

A: Although a limited number of shades have been produced, the problem of producing good unions on blends of Dynel with wool, Vicara and Acrilan remains to be solved.

A: The answer to this question is "yes", depending on the nature of the other fibers. Dynel-viscose blends are rather easily dyed with acetate colors for the Dynel and direct colors for the viscose. On the other hand, it is difficult to dye Dynel-nylon or Dynel-wool blends because these fibers have affinity for the same classes of dyestuff, but to different degrees. Dynel-wool blends probably will not be dyed in the piece for the same reason that the other acrylic fibers will not be dyed in blends with wool, because wool absorbs much more of the dyestuff applicable to these new synthetic fibers.

* * *

Q 21: What part does filament and staple Orlon play in fiber blending?

A: FILAMENT ORLON——We have here a relatively strong fiber with an excellent hand, good washing stability, and quick-drying properties. It can be used together with nylon and arranged in various striped and checked patterns. After finishing and heat treatment, nylon shrinks and puckers Orlon, producing effects very much in the forefront stylewise. Orlon is not dyed but is left white, while the nylon is dyed any desired shade.

Similar effects can be produced by substituting viscose yarns for nylon. Slashed viscose yarns will shrink in finishing, and even viscose filling, although theoretically fully shrunk, will have a tendency to contract in finishing, more so than Orlon.

Filament Orlon can be napped beautifully. Fabrics have been developed with a nylon face and a napped filament-Orlon back.

Fabrics have been made with an Orlon warp and a silk filling in crossdye effects, the silky hand of the Orlon adding to the richness of the fabric.

Filament Orlon can be combed with spun fibers mainly for suiting. Here again we are taking advantage of a strong fiber, which has a good hand and certain dyeing characteristics. We can dye the acetate and viscose, leaving the Orlon white.

Certain suiting fabrics consisting of spun acetate and spun viscose are improved in hand and serviceability by combining filament Orlon with the spun acetate, both elements being left white in dyeing.

SPUN ORLON——We can combine spun Orlon with other spun fibers to produce warm and bulky fabrics without excessive weight. Spun Orlon is of such a bulky nature that the question of number of ends and picks, weave, and yarn size is very delicate. Few liberties can be taken and the danger of overconstructing cloth is ever present. A fabric which is thus overconstructed is too bulky and stiff.

Generally speaking, spun Orlon is being used for its warmth, but other uses, like chemically resistant work clothing, etc, are conceivable and are being worked on. A small percentage of viscose fiber in such an application adds attractive coloring and crossdye possibilities. In this case, the Orlon is dyed and the viscose is left white. For clothing, the following articles are in the forefront: Orlon/viscose flannels 75/25 blends or 50/50 blends; patterned suitings for men's and women's wear of fall weight and warmth; topcoating; wool-crepe types, together with either viscose or nylon filament yarn. We have here a fiber which enables us to really expand synthetic business for fall and winter garments.

A: From the standpoint of filament Orlon, laboratory and wear-test comparisons on viscose acetate combination suitings with and without continuous-filament Orlon have demonstrated that Orlon makes several valuable contributions to this type of suiting. These are improved fabric durability resulting from increased strength and abrasion resistance. Suits containing Orlon hold their press better than comparable suits of acetate/viscose. This is particularly evident when the suits

are wetted out. The inclusion of Orlon gives the fabric a crisper, fuller hand. The inherent fiber bulk of Orlon gives a lighter fabric without change in thickness. Added stylability results from the addition of Orlon because three-color effects can be obtained in a single-bath dyeing.

Orlon staple will find its principal outlets primarily in woven outerwear and, secondly, in knitwear. In both of these fields, it will undoubtedly find application in both 100% form and in blends with other important fibers—both natural and man-made.

In woven blended outerwear in blends with rayon and/or with wool, the outstanding bulk of Orlon acrylic staple in fabric form, plus its high resilience characteristics—wrinkle resistance and recovery and press and shape retention—will make it possible for the fiber to contribute uniquely to suitings, outercoatings and uniform cloths. In blended dress goods, shirtings, and fabrics for sportswear, Orlon staple will make possible garments that are warm though light in weight, launderable and easily ironed, and durable.

Knitwear items made of Orlon staple, both 100% and in blends, such as socks, sweaters, jersey outerwear and hand-knitting yarns, have exhibited a combination of warm attractive handle, easy launderability, and retention of shape and appearance.

* * *

Q 22: Is it possible to dye wool-Dacron in union shades in the piece?

A: Yes, by dyeing the Dacron first, then dyeing the wool. This two-bath procedure would remove sufficient of the acetate dye stain from the wool to provide good wet fastness.

A: A limited number of shades may be produced on wool-Dacron in the piece. Inasmuch as the acetate dyes required for the Dacron stain the wool, perspiration tests are apt to be poor.

A: A certain degree of success has been attained in work on this problem. Light to medium shades have been produced on wool-Dacron fabrics with acetate colors applied with benzoic acid for the Dacron and metallized acid colors applied to the wool with sulfuric acid in the same dyebath. The success of this procedure depends on the selection of acetate dyestuffs for the Dacron having the property of reserving the wool, that is, staining it only to a minor degree. Such stains are not fast on the wool, and, in heavier shades, they result in poor wet crocking and perspiration fastness. Another limiting factor is that the blue dyestuffs in the acetate class tend to agglomerate in the acidic dyebath and accentuate the crocking problem. It is believed that light to medium shades may be applied, but heavier shades of dark brown, navy and black with satisfactory crocking and perspiration fastness are not yet obtainable.

A: It is possible to dye wool and Dacron, union, in the piece. It is being done every day.

* * *

Q 23: What is the best way of overcoming shading from selvage to center on jig-dyed acetate?

A: Shading from selvedge to center in jig-dyeing acetate fabrics may be overcome: first, by the proper selection of dyestuffs, that is, by selecting colors which show the least sensitivity to changes of temperature; and, second, what is even more important, by dyeing on a closed jig.

* * *

Q 24: Is the present line of dyes and inhibitors satisfactory for consumer satisfaction with respect to atmospheric fading?

A: We must assume that the present dyes and inhibitors are satisfactory to consumers because very few complaints are received about atmospheric fading.

A: Improvement is needed.

A: As a general rule, yes, providing the correct dyes and inhibitors have been properly used. There is, however, always room for improvement.

A: There is need for additions to our dyestuff line with respect to atmospheric fading. Present inhibitors and selected dyes do meet consumer's specifications, but complaints are still received occasionally because of the break-down in protection from dry cleaning and machines.

* * *

Q 25: What are the 3 or 4 most important factors in the designing of a mixed-fiber fabric?

A: In my opinion, the most important factors in the designing of a mixed-fiber fabric are, in order of their importance,

1) End use
2) Price
3) Style
4) Timing or seasonal application

A: I would say there are many important factors in the designing of a mixed-fiber fabric. It is an engineering job, and I would say the very first factor, and perhaps the most important, is a complete conception of the end use of the fabric. With this factor well in mind, it is a matter of choosing fibers for the weight, the texture, the hand, the deniers and, last but not least, the price that are required.

All fibers have a particular attribute, as for example wool for warmth and nylon for strength and abrasive resistance. It is threefore a matter of choosing those fibers that will do their very best job in the best manner.

Other factors that are very important are color and finish. You must therefore be able to get the colors you want, and these must have adequate fastness.

A: Before designing any fabric, 100% or blended, one must have in mind the anticipated end use, since it is obvious that different uses will demand different fabric properties. The most important reasons for consideration of a mixed-fiber fabric would appear to be four-fold:

(1) To make a blended fabric which will be at least as good as the 100% fabric it will replace, but at a lower cost.

(2) To achieve novel dye effects.

(3) To produce unique surface-texture effects.

(4) To compromise a combination of desirable physical properties, to emphasize one or more desirable properties, or to de-emphasize an undesirable property.

Reason (4) above is perhaps the most important and covers a multitude of things. Thus, for example, if a certain 100% fabric is lacking in resilience, improvement can be made by blending in a resilient fiber; or, if harshness is excessive, softness can be achieved by blending in a softer (perhaps lower denier) fiber; or abrasion resistance can be increased by blending with a small quantity of a more abrasion-resistant fiber. The number of properties that can be compromised, emphasized or de-emphasized in this way is obviously innumerable.

Unique surface-texture effects can be realized, of course, by inducing, for example, differential shrinkage in a pick-and-pick, end-and-end blend, or in a ply blend.

* * *

Q 26: Is the new 3A accelerated wash test applicable to fiber mixtures?

A: The new 3A accelerated test is intended to apply to any garment of any fiber that will be subject to commercial laundering.

* * *

Q 27: Can Vicara be permanently bleached?

A: Vicara can be bleached to a good white with a reasonable degree of permanence by bleaching first with Textone and then with peroxide. A better effect may be obtained by tinting after the bleach with one of the optical bleaches.

A: Vicara may be semipermanently

bleached. The bleached fiber, however, has a tendency to yellow somewhat on exposure to the sun.

* * *

Q 28: Can a permanent bleach be produced on Orlon?

A: Orlon can be bleached to a good white, but exposure to heat or in a Fade-Ometer causes yellowing. This effect is not so pronounced when the bleached material is exposed to sunlight.

A: Bleached Orlon tends to return to its yellow shade on exposure to the sun. This varies with the bleaching process. Quite satisfactory results are reported in a few instances.

A: Good whites on this fiber have been produced by successive treatments with an oxalic acid scour followed by a Textone bleach. In general, these have not been permanent to Fade-Ometer and sunlight exposures. Improvements have been made by substituting the Textone bleach with peroxide bleaches and/or tinting the fiber with violet acetate dyestuffs. The resulting whites cannot be termed permanent, but they are considered durable. At the present time, the oxalic acid scour followed by peroxide bleaching is favored because it withstands light exposure without reverting to a darker shade. However, the initial whitening effect is not quite as good as the Textone-bleach treatment.

* * *

Q 29: Can Dynel be bleached to a pure permanent white?

A: No, not at present.

A: Bleached Dynel tends to revert to its natural yellow shade on exposure to the sun.

A: From the standpoint of commercial practice, at the present the answer is "no". Dynel has naturally a light cream or amber color. Near whites can be attained by following developed procedures employing Textone in equipment resistant to this bleach solution. Our laboratories are continuing their efforts to secure a higher degree of bleach and the results are encouraging. Two of the white fluorescent dyes, notably Calcoflur White RW and Blancophor AW, have been found to be particularly valuable in color improvement of natural and bleached fibers.

In regard to permanency of the bleach, so far as we know, all, or certainly most, of the acrylic fibers are subject to some color development on prolonged exposure to high temperature. Likewise, ultraviolet rays, an excellent bleaching agent for Dynel with very long exposure, may cause some yellowing with short exposure. Consequently, statements regarding the lasting effect of bleaching must be qualified.

* * *

Q 30: What affect does Vicara have in wool blends with respect to water spotting?

A: Vicara tends to increase water spotting in wool blends. This will depend on the amount used, the construction of the fabric and the shade.

* * *

Q 31: What is the cause of banding or color shading in blended fabrics?

A: Banding or color shading in blended-fiber fabrics is often caused by a lack of uniformity in blending fibers having different dye affinities. The thoroughness of fiber blending can quite readily be determined by making cross sections of the yarns from the lighter- and darker-appearing sections. In the case of viscose-acetate blends, the acetate can be dissolved out in acetone and the ratio of the fibers determined. A variation of only 2% may be sufficient to cause banding.

A: Variation in fiber composition or poor penetration in dyeing may cause banding.

A: Generally, this effect is caused by nonuniform dyeability of one or more of the fibers in the blend. In the case of synthetic fibers employed in such fabrics, any nonuniformity in the absorption of color results in filling bands or quill junctions.

A: Banding or color shading in blended fabrics is usually due to poor blending in the early stages of the preparation of the mix.

* * *

Q 32: How can optimum seam efficiency be obtained in fabricating mixed-fiber materials?

A: It is necessary that the proper sewing thread be used for a particular fabric. Some new fibers are so tough and wirey that they will cut ordinary sewing thread through friction, causing seam failure. The sewing thread also should be the proper one in relation to stretch and shrinkage, and the proper tension should be used so that there is no undue puckering of seams in a garment after washing and dry cleaning.

* * *

Q 33: For what blends is Bemberg best adapted?

A: Both we and our customers have made a number of experiments with various blends in gabardines, flannels, checks, and so forth, but we have not as yet found the ideal blend that brings out the inherent characteristics of our Bemberg staple: a) yarn crimp; b) round filaments; c) good abrasion resistance, and d) springiness. The crimp in our staple in a blend should give us a more wool-like fabric. The round filaments should give a more silk-like characteristic to the fabric. The good abrasion qualities of our staple should give better wearing properties. As to the springiness of our fiber, on my last visit to our plant, one of our engineers called to my attention that in baling our staple we use the same baling equipment as is used for viscose and acetate staple. However, when the 100,000-lb pressure is released in the press we get a bulging out of our bale that they do not get with acetate and viscose staple for the same size of bale. This springiness should be very desirable in a fiber blend.

I would like to see a blend of viscose and Bemberg. I realize, however, we would have a troublesome dyeing problem as both fibers take the same dyestuff, Bemberg taking the dye much heavier than viscose. But by pad dyeing and some of our new techniques we should obtain a good union and not a cross-dye effect. It is worth trying.

We are new in the staple field, having only now completed our plant, and with the help and co-operation of our customers we will find a blend that will bring out the best in each of the fibers.

* * *

Q 34: Describe the dyeing of Orlon-viscose and Dacron-viscose combinations.

A: Orlon-viscose can be dyed in two ways: first the viscose is dyed with vat dyes by the usual methods, then the Orlon is dyed by the cuprous-ion method; or, second, the Orlon is dyed by the cuprous-ion method, and then the viscose is dyed with direct colors in the usual manner.

Dacron-viscose may be dyed by either a one or two-bath method. The choice of method depends upon whether or not it is necessary to remove the carrier and also upon the carrier used. In the first method, the Dacron is dyed with a carrier, such as benzoic acid. The carrier is removed, then the viscose is dyed with direct colors. In the second method, the Dacron and viscose are dyed in the same bath but the carrier must be some material other than benzoic acid, which retards the absorption of direct color by the viscose.

A: Light shades may be dyed on an Orlon-viscose blend by use of a combination of direct and acetate dyes. A two-bath process will be required for dark shades

whereby the Orlon will be dyed with acid colors by the cuprous-copper method, followed by a topping up of the viscose rayon with direct colors in a fresh bath.

Dacron-viscose may be dyed with acetate and direct dyestuffs in a single bath. For dark shades a carrier, such as paraphenylphenol, is utilized for the Dacron.

A: Orlon-viscose combinations are dyed by a two-bath procedure, acid colors being applied by the cuprous-ion technique on the Orlon, followed by application of direct colors or vat dyes to the viscose. An alternative method is to dye the viscose with vat colors and then, in a separate bath, to apply acid colors to the Orlon by the cuprous-ion method.

Dacron-viscose combinations may be dyed in a one-bath procedure with acetate colors for the Dacron in the presence of a carrier, such as benzoic acid or monochlorobenzene, and with direct colors for the viscose. It is recognized that a benzoic-acid carrier will not allow complete exhaustion of direct colors on the viscose and that a more neutral carrier, such as monochlorbenzene, will be more desirable. However, in using the latter carrier, safety precautions should be taken to avoid breathing the fumes of this poisonous and volatile solvent.

Another method of dyeing Dacron-viscose combinations employs vat colors for the viscose, followed by application of acetate dyes to the Dacron with a carrier in a separate bath. This results in fastness properties of the highest possible degree.

* * *

Q 35: Does fiber-cross-sectional shape have any important effect on its end use? Also on its dyeing characteristics.

A: Changes in shape of fiber cross section affect draping qualities and also the stiffness of the fiber. In our experience only minor changes in dye affinity are caused by fiber-cross-sectional shape, but fibers of irregular cross section may be more difficult to dry because of the larger amount of surface water held.

* * *

Q 36: What class of dyestuffs and method of dyeing are used to dye a good union on a worsted-Dacron mixture to stand No. 1 and No. 2 AATCC wash tests?

A: Acetates and acid-milling dyes on top, yarn or piece goods plus a good scouring to remove the acetate dyes from the wool. A carrier, such as p-phenylphenol or monochlorobenzene, is needed for medium or heavy shades.

A: It is assumed that this question refers to dyeing a union shade on piece goods. The procedure outlined in answer to Question 22 is the only one known for obtaining such unions, and the fastness to No 1 and No 2 AATCC wash tests should be satisfactory. However, it is pointed out again that dyeing of such piece goods in union shades is limited to light to medium shades.

* * *

Q 37: What is the proper balance between blending fibers and fabric finishing for the achievement of optimum properties?

A: The proper balance is controlled by several factors, not the least of which is economic. Multifiber blends may confer desirable physical properties on a fabric, but often other variables enter the picture, such as difficulty in dyeing unions, poor fastness, or, what can be a very objectionable feature, differences in shrinkage of the individual fibers, which occur in wet processing or pressing. This defect, if it occurs, can cause changes in hand or appearance, which will make the fabric valueless.

Most fabrics that have appeared to date require chemical finishing to obtain the body, drape or hand needed in today's market, and chemical finishes generally give the desired properties at a low cost and are of sufficient durability to survive normal use. It is very difficult to say what is the proper balance, but any contemplated fabric combining more than two fibers to get a particular effect should be studied thoroughly and with full consideration of chemical finishing before large commitments are made.

A: The proper balance between fiber blending and fabric finishing to achieve ultimate properties is a most difficult one because it depends primarily on what is desired. Basically, it can be said that a fabric should be made and engineered to the best of the manufacturer's ability. Fabric finishing certainly cannot make the fabric in the sense that all that is needed is finishing. In other words, a fabric should be made as well as it can be by using the fibers available to achieve a desired end use. The finishing should be done on the premise that those requirements which cannot be met through fiber, yarn and fabric geometry, or chemical and physical properties should be supplemented by the chemical or mechanical finishing procedure.

* * *

Q 38: Are there regulations requiring labels to show the composition of mixed fibers in finished garments?

A: The Wool-Products Labeling Act of 1939 requires labeling of wool and part-wool textiles as to fiber composition. Mixtures containing synthetics with wool would have to be labeled under this act. The Federal Trade Commission administers the act and also Trade Practice Rules for other textile products, which may apply to particular fabrics in garments. The Federal Trade Commission should be consulted for the latest information.

A: Yes. In the case of rayon there are Fair Trade Practice Rules endorsed by the Federal Trade Commission. At the present time these rules are being studied by the Federal Trade Commission for modification, where the term "rayon" will refer only to regenerated cellulose fibers and cellulose acetate will be known as "acetate".

These rules require the disclosure that the fabric is made from rayon or acetate and, in the case of mixed-fiber fabrics containing either rayon or acetate, require that all other fibers be disclosed in order of predominance. The same is true if synthetic fibers are blended with silk or linen. In case synthetic fibers are blended with wool, the wool labeling act requires disclosure of the percentage of wool present and the percentage involvement of all other fibers. At the present time there are no rules or regulations other than those outlined above covering synthetic fibers.

A: There are now new regulations of the Federal Trade Commission requiring labels showing the composition of finished fabrics containing particularly rayon and acetate. In addition, you probably are familiar with the fact that the Wool Labeling Act states that, if any wool is present, there shall be a label indicating the percentage of wool and other fibers present. Again, a label giving the amount of specific fibers present in a finished garment does not, in my opinion, tell the consumer very much, since it is the method by which those fibers are used in the blend, how they are woven and how the fabric is finished that will determine the relative worth of the fabric and garment made therefrom. The technologist must use the material, that is, the fibers, properly and weave them properly, and finish them properly in order to get the desired fabric. Unless this is done, regardless of what the label says as to content of the fabric, the consumer will not get the satisfaction she desires or deserves.

* * *

Q 39: Are there any fibers now available for commercial production into cloth that can be laundered as easily as cottons and with no special care, at prices for fiber or filament no higher than viscose or acetate price levels? It is important that the cloth retain washability and strength compared with cotton cloth or garment.

A: Viscose rayon can be laundered in the same manner as cotton. True, the fiber loses strength while wet, but it regains its strength immediately upon drying. The removal of soil from synthetic fibers is such an easy matter that severe washes are unnecessary.

* * *

Q 40: What is the textile industry doing about labeling to ensure the proper washing of fabrics at home?

A: Many manufacturers are labeling their products at the present time with proper washing instructions. Also, many of the large retailing outfits are seeing to it that all of their products are so labeled.

* * *

Q 41: How can a Dacron-wool tropical worsted be piece-dyed to a navy-blue shade fast to rubbing?

A: Cannot be done.

A: This question has been partially answered in connection with Question No 22. Considerable difficulty has been encountered in union-dyeing this shade because of the tendency of the blue acetate dyestuffs to agglomerate in the presence of the acidic carrier and sulfuric acid used in the required method. At the present time, therefore, this shade cannot be obtained fast to rubbing by piece-dyeing Dacron-wool blends. Such a fabric must be produced from separately dyed stock of the two fibers.

* * *

Q 42: Can an all-Dacron fabric be piece-dyed to achieve a good light-fastness rating (40 hours)?

A: Through the proper selection of acetate dyes, an all-Dacron fabric can be dyed to achieve good light fastness (40 hours). It is important to note that the Fade-Ometer is not accurate for measuring light fastness in this instance and that actual sunlight exposures must be utilized. Fade-Ometer ratings may be low by as much as two fastness classes.

A: Yes, Dacron can be dyed to meet a 40-hour Fade-Ometer fastness test by the use of the proper carrier and selected dyestuffs.

A: Heavy shades can be approximated to pass a 40-hour light test; however, as the Fade-Ometer may not be entirely reliable for testing light fastness on Dacron, sunlight tests are recommended.

A: The answer to this question is definitely yes. Available acetate-type dyestuffs have been employed successfully on Dacron for a number of shades with a light fastness of 40 Fade-Ometer hours. In order to achieve this light-fastness rating in light tan, gray and blue shades, certain new dyestuffs, available in experimental quantities, can be used.

* * *

Q 43: How should a Dynel-nylon or Dynel-Dacron blend be finished when nylon has to be heat-set and Dynel will not stand high temperatures?

A: Heat setting is seldom necessary in processing Dynel-nylon and Dynel-Dacron fabrics and therefore should be avoided.

A: This problem has not arisen, or at least has not been brought to our attention prior to this moment. Dynel when stabilized by a boil-off or dyeing will withstand a temperature of 240° F in the dry state without noticeable shrinkage. If this temperature is sufficient to secure adequate heat setting of the nylon or Dacron, there should be no difficulty in finishing such fabrics.

A: In the case of the Dynel-nylon blend, a setting of the nylon would have to be carried out at 240° F or below in order to protect the Dynel. Dacron should be satisfactory when treated under the conditions required by Dynel, inasmuch as it has been found that it is not always necessary to heat-set this fiber to obtain stability.

* * *

Q 44: What is the best practical method for piece-dyeing union shades on fabrics containing viscose, acetate, and dynel?

A: This question was partly answered under Question No 20.

In this three-component blend, it is advisable to employ a two-bath method. The viscose and Dynel should be dyed first with direct colors for the viscose and acid colors for the Dynel. The acetate fibers should then be dyed in a second bath with acetate colors and with precautions that the dye-bath temperature does not exceed 185° F. Some reduction in the tensile strength of the acetate fiber may occur when the Dynel is dyed because of the action of the swelling agent used in dyeing the Dynel.

A: It is almost impossible to dye a satisfactory union on fabrics made of Dynel, acetate and viscose, But if the acetate can be saponified, then the fabric can be dyed with acetate dyes on the Dynel and direct colors on the viscose and saponified acetate.

* * *

Q 45: How serious from a consumer's standpoint is the staining of white effects in laboratory wash tests of acetate fabrics in deep shades?

A: This staining is quite serious from a consumer's standpoint. As long as the article in question is so stained, it will have to be lifted from the washable category and placed in the dry-clean-only group of textiles.

A: Quite serious.

* * *

Q 46: In dyeing union shades on Orlon-nylon mixtures and blends is there a method or technique which retards dyeing on the nylon so as to allow the Orlon to be dyed to nearly the same depth of shade?

A: Nylon-Orlon mixtures and blends may be union-dyed in pastel shades by padding with resin-bonded pigments or with soluble vats, although the appearance will be influenced by the construction of the fabric.

A: An adoption of the cuprous-ion method should make this possible, although the Nylon would not be "retarded"; the Orlon dyeing would be accelerated. Although the dyeing of the nylon would not be retarded, the dyeing of the Orlon would be accelerated.

A: In view of the fact that Orlon in such mixtures must be dyed with acid colors by the cuprous-ion technique, there is every reason to believe that nylon will absorb these same colors by the same mechanism in addition to the normal mechanism of absorption of acid dyes on nylon. We know of no means of retarding the dyeing of nylon in the cuprous-ion system.

Orlon will absorb only a small amount of acetate dyes when nylon is present. Again, there is no known procedure for retarding the absorption of acetate dyes on nylon.

The dyeing of Orlon-nylon mixtures with acid colors by the cuprous-ion method usually results in a great deal more color on the nylon than on the Orlon. In certain constructions, such as a pile fabric containing Orlon in the pile and nylon backing, the Orlon actually absorbs more color than the nylon. On the other hand, in tafetta fabrics, nylon absorbs most of the acid colors. Consequently, it is suggested that each construction be studied as an individual problem.

* * *

Q 47: Does the antistatic agent disappear in washing or dry cleaning? If it does, how can it be replaced, and by what?

A: All of the antistatic agents presently available are removed by washing. Washing with a nonionic detergent will give a

nondurable antistatic effect.

A: A permanent antistatic agent has not been developed as yet. Some of the products on the market resist washing and dry cleaning to a degree. It would appear that it may be necessary for the launderer or dry cleaner to replace this finish in his processing if he will maintain the antistatic property in merchandise.

* * *

Q 48: Has some means of producing heavy shades on Vinyon been developed? Is pressure along with the necessary low temperature helpful?

A: Patents have been issued covering a procedure for dyeing Vinyon (copolymer of vinyl chloride and vinyl acetate) yarns and fibers. These are based on the use of swelling assistants and specify that the temperature of dyeing not exceed about 150° F. It is anticipated that the use of pressure at the temperature limit specified would not be particularly beneficial toward securing greater color depth.

A: Vinyon (we presume that the low-fusing material is referred to in this question because Vinyon N can be dyed the same as Dynel) can be dyed in heavy shades with acetate dyes in the presence of p-phenylphenol as a swelling agent. Pressure without heat does not increase dye take-up. The reason for increased dye affinity under pressure is due primarily to the higher temperatures obtainable under these conditions.

A: At the present time Vinyon finds its greatest use in industry where dyeing is not essential nor in fact desirable, as for example in tea-bag paper. Dark shades have been obtained, but they are expensive and have only fair wash fastness and poor light fastness. Probably, if dark shades were really required, then dope dyeing (i e, putting the pigment or dye in the spinning solution) would probably be best.

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Chemical Means of Fiber Modification in Woven State Outlined by Gagliardi

IN THE course of a talk given before the Northern New England Section in Shelton, Conn, on March 14th, D D Gagliardi pointed out that even with the numerous finishing compounds already available, there are many applications where the finished results are not adequate. In seeking to fill the gap in obtaining desired results, Mr Gagliardi suggested that a possible solution lies in the idea of using chemical means of modification of the fibers in the woven state.

Donald D Gagliardi, Warwick Chemical Division, is shown delivering his talk, "Chemical Modification of Textiles," befor the Western New England Section at their March 14th Meeting in Shelton, Conn. Seated in the rear is Rudolph Geering, WNE Chairman.

Pursuing this line of attack, it was found that the characteristics of cellulose acetate in certain respects could be improved considerably, e g, the acetone solubility could be decreased, and likewise the ironing temperature could be raised when modification increased the fusion temperature of the cellulose acetate. The crease resistant characteristics were also found to have been improved upon modification. Mr Gagliardi also brought out the fact that in certain instances modification could be achieved by using existing equipment. The modification suggested in this case was an addition to the ester of a free hydroxyl group. In addition higher tensile strength and greater elastic recovery were noted. These properties and fabric characteristics, not found in the finished fabric on the market today, might be considered desirable, it was pointed out.

In another instance, Mr Gagliardi pointed out that urea-modified cellulose, after-treated with acetaldehyde or formaldehyde, would require definite mole proportions on viscose rayon, cotton and linen. Crease resistance, higher total strength and resistance to abrasion were cited as the improvements that could be expected from modification. In several instances both crease resistance and dimensional stability could be achieved by means of chemical modification, it was stated. In the case where a glycol chlor methylate and a quaternary salt are baked on a fabric, a cross linkage is produced to give two moles of a tertiary amine salt. The fabric so modified is reportedly more stable to alkali and acids than would be the various resin applications now used. It was also cited that ring-substituted methyl ethers make it possible to produce a waterproof and crease resistant finish in one operation.

During a discussion of nylon it was stated that alkoxy methylation of nylon increased the rubber-like properties of the nylon. In the case of wool, ethoxy compounds were said to help control felting and shrinkage.

The main reason given as to why many of these modifications are not commercially available was that, in the past it has involved extra handling in performing the necessary reactions. It was also stated that time and labor are the costly part of the treatments and not the unit chemical cost. However, if looked upon as aids in producing a new material with new and desirable properties, the effort and the cost are worthwhile, Mr Gagliardi commented, after pointing out that these modifications can be carried out on both undyed or dyed goods as desired.

—♦ ♦—

Change in Speakers at Southeastern Section Meeting

It is learned that J A Woodruff, American Viscose Corporation, will replace I H Welch as one of the speakers at the May 3rd meeting of the Southeastern Section in Columbus, Ga. Mr Woodruff will discuss "Stabilization of Rayon Fabrics".

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Meeting Report— Hudson-Mohawk Section

March 21, 1952
Jack's Restaurant, Albany, N Y

FIFTY members and guests attended the March 21st meeting of the Hudson-Mohawk Section at Jack's Restaurant, Albany, N Y.

The guest speaker was Roy A Secord, Electrochemicals Department, E I du Pont de Nemours & Co, Inc, Wilmington, Del. The presentation of his paper, "Application of the Peroxygen Compounds in the Textile Industry", was followed by a discussion of the bleaching power of the newer synthetics.

Plans for the annual outing, as well as those for a combined meeting and tour of the Bigelow-Sanford Carpet Mills in Amsterdam, N Y, were outlined.

Respectfully submitted,
WILLIAM A NELSON, *Secretary*

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N Y Section Outing Date Changed

THE date of the Annual Outing of the New York Section has been changed from June 20th to June 13th. The location will be the same as in recent years—the North Jersey Country Club, Wayne Township, New Jersey. Ernest J Gsell will again serve as Outing Chairman.

30th Annual Convention
Printing Group———

SOME OBSERVATIONS IN TEXTILE PRINTING*

OTTO F HABEL
General Dyestuff Corporation
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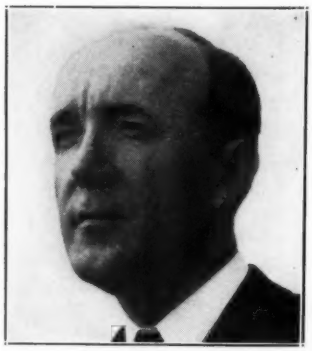
INTRODUCTION

A SURVEY of textile printing reveals that innumerable changes have occurred in the past 50 years, changes not only resulting from the desire to improve the mechanism of printing itself from the standpoint of increased productive capacity and greater feasibility of fabric styling but also changes resulting from advances in fiber and dye technology. As change continues to characterize current textile printing practice, it is the intention of this paper to review the later developments in the field of printing and to discuss the possibilities of the future, especially those concerned with the development of new dyes and new application methods.

HISTORICAL

The principal motives directing dyestuff research in the past 50 years have been those concerned with improving dyestuff quality in terms of superior fastness, a wider range in hue and brightness as well as greater flexibility in application. One of the first landmarks in the attainment of these goals was the appearance in 1912 of Naphtol AS, the anilide of 2,3—hydroxynaphthoic acid. Within a decade this cornerstone of azoic dye chemistry had expanded to include a wide color range of naphthols and stabilized diazonium compounds, which, when coupled, produced color effects of startling brightness and improved fastness properties. It is hardly necessary to mention the dominant position which this class of dyestuffs still holds in textile printing, yet it is secondary in practical significance for the printer compared to the refinement produced by research in developing the mixtures of stabilized diazo compounds and coupling compounds. Available either as Rapid Fasts (naphtholates plus antidiazotates) or Rapidogens (stable mixes of diazoamino compounds plus coupling component) this general class of Rapidogen type in particular may be considered as having had a profound effect on textile printing.

* Presented at the 30th Annual Convention in New York on October 17th, 1951.



Otto F Habel

This paper gives a brief account of past and present developments in the textile printing field in the light of future significance. Particular emphasis is given resist printing and also the printing of vat colors by the so called "flash or chemical-pad principle" in both machine and screen printing. Possibilities of obtaining satisfactory fixation during a shorter aging time than employed today are discussed in detail. The conclusion is drawn that resist printing as well as the printing of vat colors by the chemical-pad process in both machine and screen printing will find wider application in this country.

Preceding these advances in azo chemistry and later paralleling them were those based on the synthesis of indanthrone, its fusion product flavanthrone, indigo and the thio derivative of indigo. The resulting family of vat colors of both anthraquinone and indigoid types provided both dyer and printer with the ultimate in fastness properties; what is more, there followed two further and closely related developments of equal significance. One was the discovery of sodium sulfoxylateformaldehyde, a stable derivative of hydrosulfite which greatly simplified the printing of vat colors and which also made possible the discharging of direct and other color groups and the consequent production of white and colored effects on dyed grounds.

The other was the development of the Indigosol or Algosol colors based on the original synthesis by Marcel Bader of Indigosol O, the disulfuric acid ester of indigo. The wide range of vatleuco esters that followed provided the colorist with vat colors in soluble form, which require an acid developing medium and which thus can be jointly printed with stabilized azoics. They admirably supplemented the color range of the latter, with which they form the foundation of modern resist printing.

With these color tools at his disposal the colorist, over the years, has attempted to exploit to the fullest degree the fastness and styling possibilities which these developments have made possible.

SOME INTERESTING PRINTING TECHNIQUES

RESIST AND CONVERSION EFFECTS ——To produce white and colored effects on dyed grounds has always been one of the principal aims of the textile printer. While fast-color-resist prints were not possible in the early years of textile printing, we find that today white and colored resists in a wide range of shades are possible with both print colors and dyed grounds conforming to the highest fastness standards. When extended to include conversion effects resulting from overlapping prints of distinctly different dyestuff groups, this technique can be justly considered one of the most intricate yet fascinating in all textile printing, demonstrating the ingenuity of both stylist and printer in obtaining print effects unobtainable by any other means.

Early attempts at resist printing were not widely adopted for many reasons, the most important of which was the creation and commercial manufacture of sodium sulfoxylateformaldehyde. This highly effective reducing material used for localized discharging of dyed grounds could produce the same styling effects as the resisting process, but with greater ease and effectiveness. In fact, resist printing did not receive the serious attention of the textile printer until resists under naphthols were possible, particularly those under Variamine Blue.

The essentials of this resist style are printing a print paste containing aluminum sulfate on a naphtholated ground, drying the material, and coupling with Variamine Blue

Salt. The naphthol ground is destroyed where overprinted with aluminum sulfate and is thus unable to couple with the Variamine Blue Salt in those areas. For white effects aluminum sulfate is used alone, whereas, for colored effects, suitable Fast Color Salts with aluminum sulfate are used for reds and oranges, and Algosols are printed according to the aluminum-chlorate method to provide yellows, greys, greens and light blues. In both cases aluminum sulfate is included in the print paste as the essential resisting material. Other conventional Algosol methods have been considered for use under Variamine Blue. Of these, the nitrite method does not lend itself for the purpose since the oxidizing medium provided by the subsequent acid aftertreatment attacks the Variamine Blue, turning the shade considerably redder. Similarly, when the bichromate method is employed, the sodium bichromate leached from the printed area in the acid bath forms chromic acid, which oxidizes the Variamine Blue, again turning the shade considerably redder.

As an alternate to the aluminum-chlorate method for Algosol development printers have resorted to the use of the almost insoluble lead chromate as an oxidizing agent. In this manner oxidation is confined to the printed area only and a proper development of the Variamine Blue shade is assured.

The use of Algsosol Blue IBC in Variamine Blue resist styles has often presented a problem because of the fact that the Blue IBC, being very soluble, is dissolved during the passage through the diazo solution and gives rather weak prints of the IBC. It has been observed that an addition of ammonium sulfate to the print paste has a very beneficial effect. During the drying of the naphtholated and printed material the Blue IBC, representing a tetraester, is converted into the practically insoluble diester. Bleeding off during the passage through the diazo solution is thus prevented and a complete development is obtained in the sulfuric-acid bath.

Prior to the existence of the soluble leuco esters the possibility of producing vat-color resists under vat dyeings was explored, but the results obtained were very often unreliable. At least for shirtings, however, both white and tone-in-tone colored resists under light grounds were satisfactorily produced. However, once the soluble vats became a reality, the seemingly hopeless task of printing vats under vats for all purposes was resolved.

To achieve best resist effects under Algosol colors the resist compositions, either white or colored, should be printed first. Then the Algosol is padded and developed according to the sodium-chlorate or steaming process. Although resists may be produced by overprinting, i e, printing after padding and carefully drying the Algosol padding, a certain amount of premature Algosol development is unavoidable. This is particularly detrimental to white resist effects.

Both colored and white resist compositions should contain components that provide chemical and mechanical resistance to the development of the overpadded Algosol. For white resists sodium acetate and sodium thiosulfate are used as chemical resistants since their use does not produce volatile decomposition products in the ultimate aging, which might impair development of the Algosol. Colored resists are invariably produced with vat colors prepared in the usual manner with sodium sulfoxylateformaldehyde and either potassium or sodium carbonate. No further chemical additions are necessary since the reduction system provided for the vat color also serves as an inhibitor for Algosol development.

The mechanical resisting effect for both white and vat-color compositions is imparted by adding to the print-paste thickenings in each case, glue and paraffin as well as zinc oxide or titanium dioxide and china clay.

In the preparation of vat-color resists it should be remembered that excessive use of reducing agent, alkali, or glycerine and prolonged steaming during Algosol development all tend to promote formation of halo effects around the resist area. Careful control should therefore be maintained in these respects, and vat colors should be selected that can be fixed with a short steaming. In spite of these considerations, some Algosols cannot be resisted entirely satisfactorily, as, for instance, the leuco ester of Jade Green. Algosol Blue IBC is another type which for many years has presented difficulties in being resisted with vat colors. In this instance the vat-color resists have been inclined to give rather dull shades, since Blue IBC cannot be completely resisted by Rongalite, particularly in full shades. It was for this reason that only Rapid Fast Colors were used as colored resists under medium and dark shades of Blue IBC. Rapid Fast Colors, however, are limited in shade to yellows, reds and blues. However, it is now possible to obtain excellent white and vat-color resist effects even under full shades of Blue IBC by the use of compounds known to contain pyridine-betaine hydrochloride and silver salt.

A resist printing paste is best prepared from a stock paste containing the aforementioned chemicals along with caustic soda or soda ash, zinc white and glycerine. Indanthrene-colored resists are prepared by simply mixing the dyestuff with the stock thickening and adding the requisite quantity of Rongalite C. The caustic-soda content of the resist colors is a variable, which must be adjusted to the depth of the engraving used in order to avoid halos. The material printed with the resists should be steamed as soon as possible, then padded with Algosol Blue IBC in conjunction with sodium chlorate, ammonium vanadate and oxalic acid, and dried at a temperature of at least 160°F in a strongly heated hot flue. Steaming of the dried material for about 3 minutes is sufficient to develop the blue. Prolonged steaming is likely to cause formation of halos. A further point worth noting is the fact that prints containing vat-color resist effects are preferably finished, i e, rinsed and oxidized, without the usual addition of acid to the oxidation bath.

The nitrite method for developing Algosol dyestuffs may also be employed, and is often preferred, the resist paste being printed prior to application of the Algosol. The chemical and mechanical resist components necessary in this case are produced in a manner similar to that mentioned before for the steaming method. White and vat-color prints after drying are vat-aged, dried and then continuously nip-padded with the Algosol liquor prepared by the nitrite method and dried again. The resist print is then padded through oxalic acid and urea, neutralized with soda ash, and finished by rinsing and soaping. Here again Algosol Green IBW, Blue IBC and Yellow HCG cannot be resisted entirely satisfactorily.

As an extension of the resist-printing principle, interesting Fast Color conversion effects may be obtained by printing Rapidogen colors with caustic soda and an addition of sodium thiosulfate. Such prints after being dried are crossprinted with Algosol colors by the chlorate method with an addition of ammonium glycolate. During acid aging, those areas where the Rapidogen and Algosol do not overlap, the anticipated self shades for each will develop. However, when the Algosol crosses over the Rapidogen, the former's development is inhibited and the Rapidogen alone is developed. Aniline Black prepared with a nonvolatile acid, such as glycolic acid, may be used instead of Algosol color.

With the introduction of the neutral developing method for Rapidogen colors wherein a volatile amine is used in place of caustic-soda conversion, resist printing experienced a very interesting development for it not only meant that Rapidogens could be developed in a neutral steam atmosphere and thus could be employed in the same pattern with vat colors, but it also provided a means of obtaining a novel conversion effect with vat colors. In this case the Rapidogen color is prepared in the usual manner with the developer (a volatile amine such as diethylaminoethanol) and the desired vat color in its pigment form is added to the final Rapidogen paste. In overprinting such a Rapidogen print with a paste containing Rongalite and potash, the Rapidogen color is discharged while the vat color

is fixed. The part that is not overprinted shows a development of the Rapidogen color, and the vat color contained in this part will be removed with subsequent washing.

Resist printing, which is practiced so extensively in England and on the Continent and at present only to a limited extent in this country, will no doubt find wider adoption in the future.

PIGMENT PRINTING —— The period just prior to, and following World War II witnessed the introduction of a variety of new printing methods of varying degrees of significance. From the standpoint of practical value and the degree to which they were adopted by the printing trade, the pigment-printing principle is by far the most important. To do justice to this subject, however, would require separate treatment. Outside of acknowledging the position held by this method in textile printing, it appears to be more in keeping with the purpose of this paper to pass on to more directly related dyestuff printing application.

PHOTOGRAPHIC PRINTING —— The production of photographic images on sensitized textile fabrics, although not directly related to printing, deserves mention as another mode of coloring fabrics, which achieves effects somewhat similar to those produced with photoengraved rollers. The principal process employed at present is based on the fact that certain leuco vat esters (Algosols or Indigosols) can be developed into the colored pigment of the parent vat dye by means of light exposure. Light *develops* the sensitized surface of a photographic image, and hence the copying process has to be done with the aid of a photographic negative. In practice this is accomplished by use of a special copying machine composed essentially of a plexiglass cylinder over the perimeter of which is attached the photographic negative with a high-pressure mercury lamp emitting ultraviolet rays from within. Passage of Algosol-sensitized fabric over the cylinder causes color development in exposed negative areas. The undeveloped Algosol is stripped off the sensitized textile surface by means of a hot bath of sodium silicate. This process enjoys some popularity for dress-goods purposes.

FLUORESCENT COLORS——The use of fluorescent colors, currently so popular for printing acetate and nylon fabrics, will no doubt continue to be in demand for some time. Dyes like Brilliant Sulpho Flavine, Thioflavine, Eosine and Rhodamine are printed with additions, such as ammonium sulfocyanide for acetate and tartaric acid for nylon. Recently cotton and rayon printers have shown increased interest in the printing of fluorescent colors. Colors such as those mentioned above are printed from resinous emulsion, which functions as both printing vehicle and pigment binder. As with normal pigment printing a final heat curing is necessary.

METALLIC PRINTING —— The printing of textiles with metallics, such as gold and aluminum bronze, is another printing novelty sharing popularity with fluorescent dye applications. Nitrocellulose lacquers, synthetic rubber and water-phase resinous emulsions, etc, find wide application; as binders the choice depending principally on the method of application, i e, screen or machine printing, as well as whether or not they are printed alone, or in conjunction with vats, Rapidogens, or Algosols in the same pattern. In the latter case water-phase binders must be used.

VAT-COLOR PRINTING——In keeping with the desire to make the print plant a more efficient and consequently higher-producing unit, printing speeds have been accelerated in recent years to a point where a speed of 120 yards per minute or higher is not considered exceptional.

The ability to maintain or even approach this productive rate in subsequent print processing, i e, aging, soaping, etc, is considerably restricted in the case of vat colors because of the 7- to 10-minute aging usually required for accomplishing the following principal phases of color fixation:

1) solution of the active ingredients, i e, Rongalite, potash, etc.
2) reduction of the vat pigment to its leuco form.
3) absorption of the available vat leuco by the fiber.

FLASH METHOD——Although attempts to reduce fixation time materially have not met with success along conventional lines, it is interesting to note that satisfactory vat-color fixation has been obtained within 30 seconds by a number of screen printers using the so-called "flash method."

This method consists principally of printing the vat color without the addition of hygroscopic agents, such as glycerine or the usual reduction components, and of using either Cellapret DKN (a methyl cellulose compound) or locust-bean gum along with a small amount of starch as a thickening. In other words, the vat color is printed as a pigment. The prints after being dried are padded with caustic soda and hydrosulfite and, without intermediate drying, are steamed for approximately 20 seconds at 230-240°F. They are finally oxidized and washed. The thickenings used coagulate when brought in contact with alkali, and it is this behavior that prevents marking-off during the chemical padding. The absence of glycerine in the print paste facilitates complete drying, and the omission of the reducing agent gives prints an unlimited stability. The fact that unsteamed prints do not undergo any change has helped considerably to increase the popularity of this process for printing drapery fabrics. A modification of this principle is also employed in screen printing, whereby the dried print is padded with Rongalite (sodium formaldehydesulfoxylate), potash and glycerine instead of hydrosulfite and caustic soda, and, without intermediate drying, the print is aged at 230°F for 5-7 minutes in a tower ager. This latter procedure is employed in this country only in screen printing. However, it has been successfully adopted by several of the larger machine-printing establishments in England and on the Continent. The practice there is to steam in a conventional Mather & Platt at 212°F instead of a tower ager. The very reason that prints prior to printing may be stored for any length of time is an obvious feature of this process.

There appears to be an increasing interest in this country to utilize the chemical pad process in machine printing, and some very promising pilot plant prints indicate that by the use of this method a substantial reduction of the actual steaming time is possible. Needless to say, the part played by the print thickener in the diffusion of the vat leuco into the fiber during a shorter aging period is very important. For instance, thickeners containing relatively high amounts of solids tend to obstruct the transfer of the leuco vat to the fiber substance.

The above features and the fact that one is not restricted to the use of specially standardized printing brands should make the chemical pad principle of applying vat colors a valuable adjunct to present-day printing methods.

MOLTEN METAL IN PRINTING—— In conclusion, I would like to make reference to work carried on at present to utilize the principle of carrying out chemical reactions on the fiber by subjecting treated textile fabrics to a heat treatment by passage through a molten-metal bath. While this has so far been mainly employed in the dyeing of vat and sulfur colors, it is anticipated that this new process may suggest further means of accelerating the fixation of vat-color prints.

DISCUSSION

Question: Are only vat dyes usable in the color-resist method of printing?

Answer: No, besides resisting leuco esters with vat dyes, there are other combinations that may be used in resist printing. For example, Rapidogens may be employed as well as vats to give colored resists under

leuco esters, and Rapidogen resists may be printed under a padding of aniline black. Vat dyes may also be printed to give colored resists under a regular naphthol-Rapidogen dyeing.

Q: Can other color classes besides vat dyes be employed in the flash developing method?

A: Yes, provided the print paste is formulated and thickened in such a way as to avoid smearing and streaking.

Q: Why is resist printing practiced in the United States less than in England or Germany?

A: Although resist printing permits the attainment of faster ground shades than simple discharge printing and certain novel effects that are interesting where quality and style are paramount, many American printers shy away from resist printing because it is somewhat more complicated and therefore more expensive.

It is our opinion, however, that American printers could advantageously adopt resist printing for some high-class patterns when superior fastness is necessary for ground colors.

Meeting Report—Rhode Island Section

March 25, 1952
Providence Engineering Society, Providence, R I

AT A meeting of the Rhode Island Section on March 25th at the Providence Engineering Society, Frederick Fortess of the Celanese Corporation of America delivered a paper entitled, "Special Aspects of Fabric Finishing," and Harry K Townsley of Carbide & Carbon Chemicals Co discussed "Recent Advances and Experiences in the Dyeing of Dynel". Attendance was approximately 200.

Over sixty members and guests attended an informal pre-meeting dinner at the Sheraton-Biltmore Hotel.

Respectfully submitted,
R G THOMAS, *Secretary*

(Photo by John E Trezise)

(Above): Ernest Chornyei, R I Section Chairman. (Right): Frederick Fortess.

(Photo by John E Trezise)

(Photo by Kenneth C Everett)

Harry K Townsley delivering his talk "Recent Advances and Experiences in the Dyeing of Dynel".

(Photo by Kenneth C Everett)

Guest speakers Frederick Fortess (left) and Harry K Townsley converse.

Meeting Report—Pacific Northwest Section

February 29, 1952
Camas, Washington

THIRTY-EIGHT members of Pacific Northwest Section met at Camas, Washington for a one-day meeting on February 29, 1952.

The afternoon session was devoted to a visit to the Camas mill of the Crown Zellerbach Corporation, the largest paper manufacturing plant on the Pacific Coast. The group had an opportunity to study the entire operation from logs to finished paper products.

Dinner was served at the Crown Willamette Inn. Ray Jaffe, Central Research Department, Crown Zellerbach Corporation, was the guest speaker. His subject was "Color and the Spectro-photometer". Mr Jaffe presented detailed information on the use of the GE Recording Spectrophotometer for the evaluation of dyestuffs and maintaining standards. Following the discussion period, the group saw the instrument in operation at the Crown Zellerbach laboratories.

Respectfully submitted,
R M TRUE, *Secretary*

Thirtieth Annual Convention
Dyeing Group——

THE STANDFAST PROCESS OF DYEING*

FRANCIS S RICHARDSON

Waldrich Company, Delawanna, N J

The use of molten metal in the textile field is reviewed. The background of the Standfast process is given with some reference to the organization itself and the personnel involved. A brief resumé of the process is presented with remarks about various adaptations other than applying vat colors. A review of known results and some ideas of its future role are given.

INTRODUCTION

THE idea of using molten metal in textile processing is not new. As long ago as 1903, a British patent was granted to Mather and Hepburn for the use of mercury as a medium for heating fabrics in bleaching and other processes wherein the cloth was passed through the heated mercury.

Recently a patent was granted to the I G in Germany covering the use of molten metal for aging vat prints. This patent covered the work of Franz Nestleberger, who reasoned that in any printed area there was sufficient moisture to allow for the reduction of the leuco and the dyeing of the cloth, provided the moisture was immediately converted to steam as the cloth left the last nip of the print machine. This reasoning proved correct. Laboratory models have been set up and found to give satisfactory aging results.

There are a number of variables entering the picture, making the adaptation of this invention to commercial printing on a regular print machine very complicated.

Introducing cool cloth to the metal bath is a problem, and any attempt to heat the fabric would also tend to dry the printed areas and thus to defeat the whole purpose of the method. This and other reasons have discouraged a full-scale trial. Sometime, someone will harness this idea and make it work. A ribbon- or label-printing concern might be the best place to try it out on equipment considered at least once-removed from the laboratory. This would be moving into what could be considered the pilot-plant stage.

A totally independent development in the field of molten-metal work has been carried on in England. This enterprise grew out of the idea and desire to find and develop a means of continuous vat dyeing. Since it was initiated and worked out in a dyeing and printing plant, it is obvious that the first considerations were along lines best suited to their own immediate needs on fabrics being run in their own plant.

Francis S Richardson

The Standfast Dyers & Printers of Lancaster, England, is a commission works owned by the Morten Sundour Co. Morten Sundour has been in existence for many years and has plants in England and Scotland, weaving and dyeing a variety of fabrics, most of which are used in the house-furnishings field. They have always endeavored to produce and maintain high quality work; thus, very high standards have been established. Constant checking of fabrics produced is carried on at all times. Improvements are made whenever new products or methods deem it advisable.

At the time of the First World War, the dyestuff supply picture in England and Scotland was disrupted as it was elsewhere. Charles Morten, then owner of Morten Sundour, decided to do something about it. He hired two chemists, gave them an assistant and put them to work making dyes. This they did, producing not only the then-known dyes but developing new ones. Among the new dyes was one destined to become famous; it was the well-known vat color, Jade Green.

The manufacturing of dyes became a sizable operation, and Scottish Dyestuffs Ltd was created. This company later became part of Imperial Chemical Industries.

The Standfast process owes its development to a team of investigators working under the direction of the Chairman of the Company, R S E Hannay. On this team the name of the chief chemist, William Kilby should be mentioned.

GENERAL PRINCIPLES OF MOLTEN-METAL DYEING

The principles of the process are quite well known, and previous publicity has acquainted numerous people in industry with the details of the machine; however, a review would seem advisable at this time.

The following is a direct quotation from a paper given by G L Boardman of the Standfast Dyers, which appeared in the 1950 August issue of the *Journal of the Society of Dyers & Colourists:*

"The principle involved in the process is the use of molten metal as the medium in which fixation of the dye occurs, hence the name. The cloth is simply impregnated with dye liquor and passed through the molten metal, where dyeing is completed.

The unit consists of two parts, the dyeing machine and the conventional soaping range, but both are run together as a single unit. The dyeing machine itself is extremely simple, consisting of an iron vessel filled with molten metal of the fusible-alloy type, having a melting point of approx 70° C. The machine has two legs 5 ft long, about 1 in wide and 6 in apart, joined together at the base, where there is a roller to allow the cloth to pass freely from one to the other. As the width of the machine is 5 ft, there is in fact a large U of metal 5 ft wide, 5 ft deep, and 1 in thick. The cloth is passed in open width down one arm of the U tube and

* Presented at the 30th Annual Convention in New York before the Dyeing Group on October 17, 1951.

up the other, a total passage through the metal of a little over 10 ft being obtained. At certain intervals down both legs of the machine and on both sides of the cloth, steam heating pipes are arranged so that an even temperature is maintained throughout the molten metal.

At the surface of the metal on the entry side, there is a bottomless stainless-steel dyebath exending the full width of the metal slot, this being 5 ft long and less than 1 in wide. The height of the dyebath is such that there is almost 8 in above the surface of the metal and 2 in below. When the dyebath is filled, the liquor floats on the surface of the metal, which acts as the bottom of the dyebath. The reason for having the dyebath sides extend below the metal surface is that the molten alloy has a density of about 9, so that an 8-inch column of dye liquor depresses the surface of the metal only about 1 inch.

During dyeing, the cloth in continuous length is passed through the dye liquor directly in the molten metal. In the dyebath it becomes thoroughly saturated with dye liquor, and all excess is squeezed out by the pressure of the metal. During its passage through the molten metal, which is maintained at 95-105° C, dyeing takes place, and on leaving the machine the exhausted dye liquor is removed in another bath very similar to the dyebath but containing salt solution as wash liquor. The dyeing is now completed, and the cloth passes into an open-width soaper, where it is oxidized, washed, and given a thorough soaping and final successive washings before being nipped and plaited down for drying.

Thus the process is continuous, with white cloth being fed in at one end and emerging ready for drying at the other."

ADVANTAGES

It is possible to utilize the entire range of vat colors without regard to the group to which they belong, and one concentration of hydrosulfite and caustic soda suffices for all vat dyes.

Results on the big machine come remarkably close to matches made on laboratory equipment.

The uniformity of the dyed fabric is excellent, there is no end-to-end shading, no tailing whatsoever and no side-to-center shading or dark selvages.

It has been stated that a shade change can be made in five minutes. This is quite possible. The operation of changing shades was observed where a cotton-rayon drapery fabric was being dyed. The order in question called for only one thousand yards. As the lead cloth attached to the end of the goods from a full rose shade went through the dyebath, the dye liquor was shut off and a solution of caustic and hydro was pumped into the dyebath section. This was shortly shut off, the dyebath was sucked dry, and caustic and hydro were pumped in again. At the same time the salt bath on the delivery side was emptied and cleaned. When everything was in readiness, the prepared color for a full shade of green was pumped into the dyebath, the cloth was started through, and dyeing was underway in exactly twelve minutes. When examined, the two shades yielded a full yardage of first-quality cloth.

As was indicated previously, this equipment was developed in the aforementioned dye plant for their own particular needs and requirements. Although other units may be in operation, at this writing no unit outside Standfast's own plant has run cloth. There is therefore a great deal of experimental and developmental work to be done on different kinds of materials. There may be fabrics that do not lend themselves to satisfactory performance on the unit, just as this is true for other vat-dyeing methods. There is some indication that certain types of fabric will have to be pigment-padded and then flue-dried before being run through the metal bath. This operation has already been carried out by Standfast. As is customary with such a requirement, the pad and drier should be in tandem with the rest of the equipment.

A number of machines are now being built and installed. When these have been put into operation and run on different qualities and constructions, a more comprehensive picture will be available. The results obtained from additional running will greatly influence the use of this method of applying color to cloth.

Experimental work with direct colors has been undertaken with some promising results.

The method can be adapted to dyeing textiles other than woven fabrics. As an example, yarn may be vat-dyed in continuous fashion with promising results.

Time and experimentation will give answers to the many, many questions that have been asked concerning the potentialities of the method. The people responsible are in no hurry to promote the process until it has proven itself. It is an economical way of vat-dyeing fabrics in short yardages with excellent results. This establishes the process as a factor in the vat dyeing field; how extensive a factor remains to be seen.

DISCUSSION

Question: Have acid dyes been applied to wool piece goods on the Standfast machine?

Answer: Only on the laboratory machine, so far as I know. The dyeing of wool fabrics is apparently quite feasible, and Standfast has set up a full-width machine, which will turn out something like 200,000 yards a week for commission customers.

They also have an experimental but full-scale yarn-dyeing machine, on which there has been experimentation with cotton yarn.

A third machine is being put into operation for dyeing direct colors on cotton and selected dyes on wool fabrics. This firm is not particularly active in the wool field, but they do recognize that some full-scale experimentation has to be carried out. I have seen a great many wool samples dyed with neutral-dyeing acid colors.

Q: Were there any dark shades?

A: Yes, a full range of shades.

Q: Have any experiments been carried out with acetates?

A: Limited experiments, especially with sample pieces from this country. The main auxiliary range is not designed to handle synthetics properly. I mean, the present washing units do not handle fabrics as gently as they should, especially acetate and rayon blends. Little work has been done with Terylene, nylon, or Orlon acrylic fiber and not much is known yet about the feasibility or practicability of dyeing fabrics of those fibers.

Q: It has been stated earlier this afternoon that the molten-metal bath must be kept below 212°F or steam bubbles will form and cause spots on cloth. Have you any comment?

A: So far as I know, the present operating maximum is 195 to 198°F; efforts are being made, however, to operate at 200°F.

Q: What is the operating speed?

A: About 50 yards per minute. High-speed operation has not been attempted. I would say that the practical operating range is 30 to 60 yards per minute.

Q: What is the loss of metal in operation?

A: The reported loss of metal amounts to one-twentieth cent per yard.

Q: How does the method work with sulfur dyes, and is there a reaction of metal with sulfide?

A: I understand that experimental work with sulfur dyes is being carried out by ICI rather than by Standfast, but I know nothing about the details, except that reaction between molten metal and sulfide was a problem.

Q: Have pile fabrics been dyed by the molten-metal process?

A: Yes, cotton corduroy and some types of carpeting.

• PATENT DIGEST •

PAUL WENGRAF

IMPROVING FASTNESS OF DYEINGS——Dicyandiamide-Copper-Formaldehyde Complexes C, 4, 01

U S Pat 2,576,241
(Dan River Mills—Spangler—Nov 27, 1951)

The present patent is said to improve fastness of dyeings "to hot water, soap and frequently to light" by an aftertreatment with a special dicyanodiamide condensate. Although no examples for the subjected dyestuff classes are offered it may be assumed that the main purpose is to improve the fastness properties of *direct dyeings*.

The product described is prepared by hydrolyzing dicyanodiamide in an acid medium, converting it thereby into a form that easily combines with copper salts, and reacting the copper-containing condensate under acid conditions with formaldehyde. Alternate procedures include reacting the amide first with $CuCl_2$ and then with acid formaldehyde, or, first with formaldehyde and thereafter with the copper salts. In any event the final complex product has marked substantivity to cellulosic fibers. Dyeings may be immersed in the aqueous solution of this product, and followed thereafter by rinsing and drying. Because of the affinity of the condensate complex to cellulosic fibers substantial fixation takes place in normal drying operation, and heating or curing processes of the impregnated goods are not necessary as in padding processes with other condensates.

Acid hydrolyzing of dicyanodiamide is essential for combining it with copper salts and formaldehyde to form a stable product. Reacting the amide with formaldehyde and then with a copper salt *does not give* compounds substantive to cellulose.

The optimum hydrolysis depends on certain proportions: approximately 0.22 mols $CuCl_2$ and 0.44 mols hydrochloric acid to one mol dicyanodiamide and 1.5 mols formaldehyde. Lesser amounts of acid produce compounds of insufficient substantivity. Excess copper chloride is not used up and the uncombined Cu can be precipitated by hydrogen disulfide. Copper nitrate and nitric acid can be used instead of the chloride and HCl, although other copper salts do not give satisfactory results.

Example: an aqueous concentrated solution of dicyanodiamide is heated to 170°F in open steam. Upon the addition of copper chloride an exothermic reaction takes place bringing the temperature of the solution to 196-200°F. After cooling, hydrochloric acid and formaldehyde are added, again bringing about an exothermic reaction wherein the final condensate is formed.

Advantages of the present process are in the simple way of application and in the elimination of padding with concentrated solutions and curing processes whereby the tensile strength of the goods is frequently impaired. This improvement is evidently made possible by the substantivity of the copper-resin complex. Light shades require 1% concentration of the condensate solution, medium shades about 4%, and dark shades about 12%.

Among other references cited by the Patent Office:

USPat 2,462,428 (Ciba/1949): preparing glass fibers with water soluble precondensates of cyanamide or dicyandiamide plus formaldehyde to obtain affinity for acid dyes (cf *Am Dyestuff Reptr* 38, 424, 1949).

USPat 2,440,988 (Geigy/1948): improvement of dicyanodiamide-formaldehyde condensates (which form sticky products unstable to sulfate ions) by adding ammonium chloride or a similar salt.

USPat 2,405,863 (Geigy/1946): dicyanodiamide-formaldehyde condensates combined with ammonia to improve the fastness of direct dyeings (cf Brit P 588,990, *Am Dyestuff Reptr* 37, 36, 1948).

USPat 2,207,442 (Cyanamid/1940): condensing dicyanodiamide with formaldehyde under alkaline conditions, and adding heavy metal salts (Cu, Zn, Sn, Ni, etc) to improve the equality of these products.

Further reference is made to USPat 2,526,-106 (Ciba/1950, cf *Am Dyestuff Reptr 40,* 198, 1951). In contrast to the present invention the fastness of direct dyeings is improved by using basic condensates of dicyanodiamide with formaldehyde combined with water soluble copper complex salts. It is stated in this specification that it was hitherto not possible to combine nonammoniacal copper salts with these resin precondensates.

FLOCK PRINTING——Cellulose Swelling Agents Forming Adhesive Layers D, 1

Brit P 662,452
(Heberlein & Co A G—Dec 5, 1951)

Flock effect patterns are generally produced by preprinting a sticky lacquer or the like and dusting or blowing loose fibrous material over the printed areas. Lacquers, generally dissolved in organic solvents, are expensive and usually involve risks because of their flammability.

This patent proposes the use of a paste containing a solvent or swelling agent for cellulose as an adhesive layer. Pastes of this type have the property of dissolving partly and superficially the printed portions of the fabric as well as the flock dusted thereon. A modification of this process consists of printing the paste on nonswelling fabrics and dusting the cellulosic-comminuted fibers on them. The flock also adheres under these conditions and a two-tone effect may be obtained in dyeing the fabrics.

Zinc chloride, calcium thiocyanate, quaternary ammonium compounds, such as "Trilon B" (benzyl-trimethyl ammonium hydroxide), and cuprammonium- or copper ethylene diamine solutions are suitable as swelling or dissolving agents in this method. Sodium zincate or cellulose xanthogenate are also mentioned in the examples. None of these are inflammable but all are relatively inexpensive.

Example: a fabric of mercerized cotton is printed with a concentrated zinc chloride solution thickened with viscose scrap. Viscose is dusted on the fabric in flock form. The goods are first dried at about 70°C, then rinsed in water and dried again. The flock adheres to the substratum because of its swollen condition without pressing or other mechanical means.

Reference is made to the same Company's French Patents 864,099 and 864,100 (cf *Am Dyestuff Reptr* 35, 457, 1946) concerning flock printing with esterified-, etherified-, and formaldehyde-pretreated cellulosic fibers that are fixed (in contrast to the present invention) by preprinting with the customary solvent-soluble lacquers. The fixation with syrupy formaldehyde urea precondensates, which are afterwards hardened by curing, has been mentioned in Brit P 573,855 (Freiberg, cf *Am Dyestuff Reptr* 35, 376, 1946).

DYEING VINYL COPOLYMER FILAMENTS——Short Aftertreatment at Elevated Temperatures C 4, 07

U S Pat 2,577,846
(Union Carbide & Carbon—Feild, Jr—Dec 11, 1951)

This invention refers to the dyeing of vinyl chloride-acetate fibers (Vinyon). It is known that, at elevated temperatures, these filaments cannot be dyed like silk or cellulose fibers because of their excessive shrinkage. The maximum permissible temperature is about 65°C.

According to the present invention, improved results with respect to the deepness of shade can be obtained by first impregnat-

ing the filaments in a dyestuff solution at (maximum) 60°C and then passing them through a zone heated to 115-200°C while under tension in order to prevent substantial shrinkage. The first step has to be considered a superficial coating process. The dye is dissolved in any solvent that has no effect on the fiber-forming resinous substance. In the case of basic dyes (Victoria Blue or Astraphloxine) the solvent should be water; acetate dyes such as Eastone Rubine C or Eastone Blue B are best dissolved in alcohol, while oil-soluble dyestuff types, e g, Calco Oil Yellow 7463 or National Oil Pink B, are best dissolved in an appropriate hydrocarbon mixture. The second step, a heat aftertreatment of the yarns previously dried at moderate temperatures, consists of stretching at 110, 125 or 140°C to increase the tenacity to at least 2 g per denier, thereby reducing the elongation to 10-30%.

It is also possible to use prestretched fibers in this method. In this event the dyestuff-coated filaments are passed immediately through the heated zone under sufficient controlled tension to prevent further shrinkage.

References cited by the Patent Office:

USPat 2,347,508 (Carbide & Carbon—1944): dyeing vinyl copolymer fibers from solvents that are partly miscible with water at about 60°C. The solvents used are mesityloxide or methylisobutyl ketone.

USPat 2,321,746 (American Viscose—1943): vinyl resin filaments are stretched over 50%, twisted, and then heated up to fusion temperature while longitudinal stretch is prevented.

USPat 2,232,460 (American Cyanamid—1941): dyeing fabrics (containing vinyl fibers that are mixed with cotton or wool) in a dyebath in which the unshrunk polyvinyl fibers show substantial shrinkage.

USPat 2,080,254 (Celanese—1937): indigoid or anthraquinoid vat dyes dyed on cellulose acetate are aftertreated at 150-180°C to promote penetration.

Am Dyestuff Reptr, Oct 27, 1941, pages 575-578 (Heymann): dyeing vinyon fibers with acetate dyes, applying higher temperatures (above 135°C recommended).

NEWS

• Aula Takes Over H V Walker

Aula Chemicals, Inc, formerly of Jersey City, N J, has taken over the plant of H V Walker Co, manufacturers of industrial finishes (lacquers and enamels) and similar products, at 714 Division St, Elizabeth, N J, according to a joint announcement by Dr Laszlo Auer, president of Aula, and Dr Leslie Balassa, vice-president.

All production facilities of the Walker plant have reportedly been added to the former Jersey City production equipment of Aula. In addition, quantities of new equipment will be added to complete a plant modernization program now under way. Both the Aula line of textile colors and the Walker line of industrial finishes are now manufactured by Aula. The H V Walker Co will continue to sell the Walker line of industrial finishes, it is learned.

The acquisition of the Walker site and facilities reportedly gives Aula 20 times its former manufacturing, storage, office and laboratory space, located on 4½ acres of land. Both capacity and personnel are expected to double within six months, according to Drs Auer and Balassa.

• New QRC Branch Warehouse in St Louis

To provide better service and deliveries to the growing St Louis Industrial Area, Quaker Rubber Corporation, Division of H K Porter Company, Inc, Philadelphia, has established a stock-carrying branch warehouse and sales office at 4006 Papin Street, St Louis, Mo, according to an announcement by T M Evans, President.

The opening of this branch warehouse is the latest move in Quaker Rubber Corporation's established policy of expanding its distribtuion facilities to all important industrial areas in order to provide them with prompt service.

The new branch which reportedly will carry a complete line of industrial rubber products, including rubber conveyor and transmission belting, hose, packing and miscellaneous molded rubber products, will operate under the supervision of J H Joyner, District Sales Manager.

• European Convention of Chemical Engineering Set for Next Month

A European convention of chemical engineering, to be held from May 18th to 25th in Frankfort/Main, Germany, has been arranged jointly by the Dechema (Deutsche Gesellschaft für chemisches Apparatewesen E V) and the Societe de Chimie Industrielle, Paris, in conjunction with Achema X—the 10th Chemical Engineering and Appliance Exhibition.

The Societe de Chimie Industrielle, Paris is at the same time holding its 25th International Congress of Chemical Engineering, while the Society of German Chemists and the Dechema are holding their Annual General Meeting.

Approximately twenty plenary lectures and papers will be read by European and American experts on the latest developments in the chemical process and appliance fields. Over 500 firms will exhibit their latest products and developments in eight exhibition halls covering an area of 35,000 square meters.

• Wyandotte to Increase Production of Pluronics

Concurrent with a price reduction, the production of the Pluronics (nonionic detergents) will be increased, according to a recent announcement by Carl Pacifico, director of market development, Wyandotte Chemicals Corporation. It was pointed out that new facilities will enable Wyandotte to produce the Pluronics in quantities adequate for their use on a commercial scale.

Based upon use of polyoxypropylene glycols as the hydrophobic unit, this series of 100% active agent nonionics includes liquid grades (Pluronics L44, L62 and L64) of uniform viscosity and Pluronic F68—the first 100% active flake nonionic detergent ever to be commercially produced.

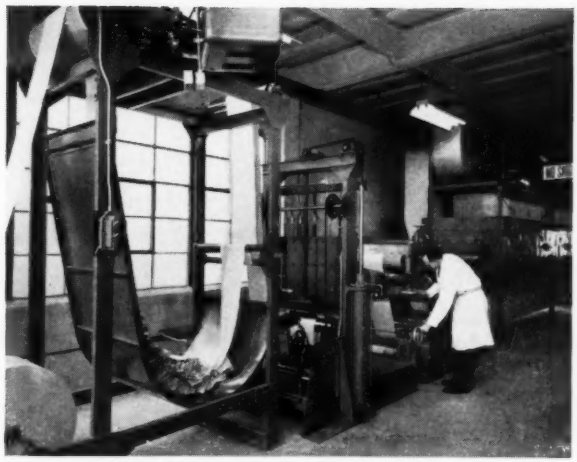
New prices under the reduced rate for Pluronic L44, L62 and L64 will be 42½c per lb in truckloads of drums and 44c per lb in single drum quantities, it is reported. Pluronic F68, the solid nonionic in flake form, is now 48½c per lb in truckloads and 50c in single drum quantities. (In all cases minimum freight is allowed east of the Rocky Mountains).

• Newman Heads New Company

Laboratory Industries, Inc, Chicago, Ill and Alexander I Newman, formerly executive vice president of Precision Scientific Company, have jointly announced the formation of Labline, Inc for the manufacture of laboratory apparatus, instruments, and equipment.

In his capacity as President of the new corporation, Mr Newman, in addition to his administrative duties, will devote special attention to new laboratory instrumentation. Arrangements are now being completed for enlarged manufacturing, research and development facilities.

The company's line of products, sold under the names "Alumaloy" and "Labline", include laboratory clamps, apparatus, baths, ovens, and laboratory furniture.



Letoff Unit of pilot plant coating system in new IOI Research and Development Laboratory

• Hilton-Davis Honored by U S For Technical Aid to Europe

Special recognition has been given by the United States Government to The Hilton-Davis Chemical Company Division for the role it is playing in supporting mutual American-European efforts to strengthen the free nations against communism.

A "Certificate of Cooperation", bearing the red, white and blue "Strength for the Free World" shield of the Economic Cooperation Administration, and a letter of citation signed by Acting ECA Administrator Richard M Bissell, Jr, were received recently by James F Thompson, general manager.

The certificate states that it is awarded in recognition of the firm's "furnishing technical assistance to the peoples of the Marshall Plan countries to aid them in maintaining individual liberty, free institutions and peace."

• NPA Reports on Sulfur Supply

The Chemical Industry Advisory Committee was recently informed by the NPA that sulfur supplies for the 2nd quarter (1952) are expected to be equal to first quarter production. NPA said the industry's essential sulfur requirements are being met within the restrictions on sulfur use outlined in their sulfur order, M-69, amended.

In reviewing the recent Defense Production Administration sulfur expansion goal calling for production of 8,400,000 long tons of elemental sulfur or sulfur equivalents by 1955, NPA told the committee that actual production by 1954 presently is expected to total 7,111,000 long tons.

• IOI Embarks on Coating Research Program

With the opening of a new web coating research and development laboratory in Cleveland recently, Industrial Ovens, Inc, began an extensive program of research and investigation of production methods in the coating field through the application of Plastisols, Organosols, Hydrasols and silicones.

The laboratory is reportedly equipped with a complete pilot plant coating unit, which can process textiles, papers, films and foils through all methods of coating and impregnating. The unit automatically controls processing velocity, temperature, time, coating thickness and embossing pressure, it is claimed.

In addition to chemical compounding equipment for measuring, mixing and weighing, the new laboratory is said to include such testing equipment as analytical balances, beta ray gauges, electronic Scott Testers, tensile testers, abrasion rotary testers, optical comparators, potentiometers, viscosometers and miscellaneous equipment.

• Textile Institute Establishes International Relations Committee

To promote the international aspects of its work, the Textile Institute has established an International Relations Committee, with John Boulton, F T I (Courtaulds Ltd, Droylsden, Manchester) as chairman.

It was after a visit paid by Mr Boulton to the U S that the Institute's American Panel was established, and the new committee is inviting members in India, Australia, and South Africa to consider the possibility of forming similar panels. Contacts are also being established with members in Canada, Switzerland, France, Sweden and Norway, it is learned.

The new committee is also reported to be taking over responsibility for liaison between the Institute and other textile organizations overseas on matters of textile science and technology.

Of the Institute's 5,600 members, there are already 1,000 who reside outside the British Isles, and some 15 per cent of the new members joining the Institute each year are from overseas.

• NBTI Club Elects Officers

Roger Gentilhomme, Cluett, Peabody and Co, Inc, was elected President of the New Bedford Textile Institute Club of New York at a recent meeting in New York. Other officers elected for 1952 include: George Maynard, U S Testing Co, Inc, *Vice-President;* Albert Malick, Emkay Chemical Co, *Secretary;* and Joseph Crowley, U S Testing Co, *Treasurer.* Mr Gentilhomme succeeds George Hotte of the A M Tenney Company.

Paul Atchison, Spool Cotton Company, was named for a three-year term as a Director and James Hollis, United Merchants and Manufacturers, was named as a Director for one year.

The guest speaker, Dr George Linton of the Fashion Institute of Technology, addressed a group of about 50 members of the club. His talk covered the growth of the Fashion Institute to its present status, and dealt with the service which the school and its graduates now provide for the textile industry and the apparel trade. Dr Linton also made mention of the methods used at the Fashion Institute to place their graduates in the trade and of the remarkable success which they have had in recent years.

• Scher Brothers Expands Lab, Research Facilities

Scher Brothers, 519 Getty Ave, Clifton, N J, manufacturers of Dy-Set dye fixative and a complete line of textile chemical specialties, have announced the expansion of laboratory facilities and equipment "for more comprehensive research, development, testing and production of dyestuffs and textile finishes".

• Construction on Emery Oxidation Unit Utilizing Ozone Okayed

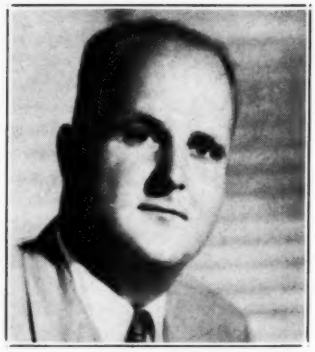
With receipt of permission to proceed with construction, Emery Industries, Inc, Cincinnati, has revealed many years of intensive work in switching from the production of azelaic and pelargonic acids by the chromic-acid oxidation of oleic acid, to the use of a Welsbach "ozone" Unit. This new two-million dollar plant will be erected adjacent to Emery's present chemical plant where the first commercial production of azelaic and pelargonic acids was begun about ten years ago, it is learned.

With the rapid growth of plastic-coated textile materials both in the yarn and cloth form, Emery's research has been applied to improving the performance and reducing the cost of plasticizers which in the main are esters of azelaic or pelargonic acids. According to Emery, this new plant is an important step in that direction, increasing manyfold the availability of both acids, as well as their esters. This new process is also said to make possible a higher degree of purity and a better control of the end products. With the elimination of the corrosion problems associated with the chromic acid process, a further increase in purity may be expected.

Considerable work has been done on polyamides made with azelaic acid as the dibasic component. These are of the nylon type but are characterized by a higher water resistance.

Emery reportedly will continue operation of its Pilot Plant utilizing ozone as the oxidant to permit sampling of these products representing the higher quality resulting from this new process. It is expected that the new plant will be in full production by the middle of 1953.

An interesting sidelight stems from the fact that tallow, which is the principal raw material from which oleic acid is produced, is a low-cost, domestic material, readily available even during times of national emergencies. On the other hand sebacic acid, a dibasic acid closely similar chemically to the azelaic produced from oleic acid, is derived from the castor bean, an imported product relatively high in cost, which is subject right now to unsettled world conditions.



R S Aries

• Aries Lauds Performance of Chemical Process Industries

New products put into initial commercial production by the United States chemical process industries in the last decade account for nine billion dollars of annual sales, according to Dr Robert S Aries, New York consulting chemical engineer. Speaking at a recent meeting of the Synthetic Organic Chemical Manufacturers Association of the United States at New York's Hotel Commodore, Dr Aries indicated this to be only the wholesale level of primary chemical process products and pointed out that it is equivalent to several times that amount in converted and retail form, or in any computation such as "national income". No other group of industries has matched this performance, he declared.

The use of older products has also grown at a rapid rate, so that the chemical process industries now exceed fifty billion dollars of annual sales, as compared to thirteen billion before the war, Dr Aries stated. He indicated that in addition to new products, the expansion of old products plus inflation have accounted for the tremendous growth in sales.

It was also indicated that, in the seven years from 1946 throdugh 1952, the chemical process industries will have spent more money (expressed in current dollars) for new plants and equipment than the value of the industry's gross capital assets at the end of 1945.

Speaking on the subject of "Blueprinting Your New Product Development" Dr Aries cited several examples of recent changes caused by chemical developments.

• 7th Purdue Industrial Waste Conference

Approximately fifty papers on subjects dealing with industrial wastes and their treatment will be featured at the 7th Purdue Industrial Waste Conference, which will be held May 7-9 in the Purdue Memorial Union, Purdue University, Lafayette, Ind.

• Two ISO Subcommittees to Meet in June

Two subcommittees of Technical Committee 38 (Textiles), International Organization for Standardization, will meet at Columbia University, New York, N Y, during June 13, 14 and 16. The meeting of a third subcommittee (#6—Fiber Testing), originally set for the same time, has been indefinitely postponed.

Representatives from nine nations will gather for the meeting of Subcommittee 2 —Shrinkage of Fabrics in Washing—to take up determination of changes in dimensions, shrinking or stretching, of woven cotton, linen, and mixed cotton and linen fabrics to be expected when cloth is subjected to commercial or home laundering. Participating nations will include France, India, Netherlands, Sweden, United Kingdom, United States, USSR, and, for the first time since the war as a member with full rights, Germany.

Representatives from Belgium, Czechoslovakia, France, India, Switzerland, United Kingdom, United States, and USSR will attend the meeting of Subcommittee 5 on Yarn Testing. A revised draft proposal for methods of test for yarns will be considered.

The American Standards Association will serve as Secretariat for both subcommittees.

• AOCS to Sponsor Short Courses on Soaps and Detergents

The names of four speakers have been announced for the 1952 short course on soap and detergents, to be given by the American Oil Chemists' Society at Rutgers University, New Brunswick, N J, July 6-11. They include John W Bodman, Lever Bros Co; John W McCutcheon, consulting chemist; and W A Peterson and Martin D Reinish, Colgate-Palmolive-Peet Co.

Subjects covered in the short course will include soap raw materials, soap processing, soap properties, surfactants and synthetic detergents, and evaluation methods. Chairman of the course is Foster Dee Snell of the Foster D Snell Laboratories, New York, N Y. Four industrial trips have been planned for each of four afternoons, to Colgate-Palmolive-Peet Company, Jersey City, N J; Lever Brothers Company, Edgewater, N J; J Howard Smith Company, Port Newark, N J; and Woburn Chemical Corporation, Kearny, N J. Registration fee, including room and board, is $90. Inquiries should be sent to the national headquarters of the American Oil Chemists' Society, 35 East Wacker Drive, Chicago 1, Ill, asking for the application form and lecture outline.

NEW PRODUCTS AND DEVELOPMENTS

• Arkansas Releases Details on Hydro-Pruf

Arkansas Company, Inc, Newark, N J, has released first details of their new, durable water-repellent finish, which, they state, promises to be of great interest to those plagued with the problem of finishes failing too early in the life of a fabric.

Named "Hydro-Pruf", the new finish represents a definite departure from established theories and processes and is said to be entirely different chemically from others in the field. N C Shane, vice president in charge of sales development and developer of the new product, describes it as a nonfoaming resin.

Fabrics processed with Hydro-Pruf reportedly will stand many dry cleanings or go through many launderings with their resistance to water repellency only slightly impaired. (With an initial spray rating of 100 (AATCC spray test), a drop to only 90 was reported after as many as 20 dry-cleanings of one acetate-viscose gabadine.) In addition, Hydro-Pruf is said to impart a most desirable hand. Use of the product in conjunction with thermosetting resins reportedly improves crease resistance, stabilization and resistance to abrasion "tremendously".

It is stated that Hydro-Pruf is nontoxic, has no objectionable odor, comes in liquid form and is readily miscible in cold water in all proportions. It may be applied from a hot or cold solution as desired. A minimum temperature of 300°F is required for curing, it is pointed out. The manufacturer states that Hydro-Pruf is compatible with urea- and melamine-formaldehyde resins as well as many of the noncuring type resins.

Although "new" in respect to promotion, Hydro-Pruf actually has been in use for two years in many leading mills, during which time millions of yards of various types of fabrics have been processed. It reportedly has been found to be exceptionally easy to apply and thoroughly dependable. As the application is not a coating process, the fabric remains in a condition as to breath easily. Its versatility has been tested with applications to cotton, wool, acetate and viscose (spun and filament). It reputedly does not affect the light fastness of dyes or breaking strength, resistance to gas fading on acetate being increased.

Descriptive literature is now being prepared by Arkansas.

• Dexter Adds Four New Substantive Softeners

A basic group of four new substantive softeners, now being offered by the Dexter Chemical Corp, Box 1, Blvd Sta, New York 59, N Y, appears to meet the demands of the finisher for excellence in resistance to washing and dry cleaning in addition to providing a highly-desirable hand. The new materials are based on complex amine structures.

Ampitol A, an anionic softener that is reported substantive to cotton, acetate, rayon and nylon, is recommended by Dexter for use where maximum whiteness or resistance to light fading of the colors is important. It is said to be compatible with anionic agents, starch, dextrines, gums and similar substances under normal processing conditions. It is applied in the dye beck as a final finish, or may be padded on the goods.

Ampitol KZA reportedly does not precipitate with anionic or cationic substances and may be used with acids, alkalis, resins and copper salts. It is also said to be completely substantive to cotton, acetate, viscose and nylon, exhibiting its most efficient softening properties on the synthetics. It is stated that Ampitol KZA can be applied directly in many dyeing operations and with many resins, salts and other substances that would cause trouble with conventional softening agents; this is reportedly achieved by adding solubilizing groups to the softener molecule while retaining certain groupings responsible for its affinity to the fibers.

Ampitol KZ3H is offered as an answer to the combined problems of nonyellowing, lightfastness and compatibility with anionic and cationic agents under normal conditions, though its softening is slightly less as a result. Its application is said to be equally as flexible as that of KZA.

Oldest in order of development in the Dexter Laboratories, is Ampitol ZR, the fourth member in the group. Ampitol ZR is a straight cationic softener, said to produce an exceptional degree of softness at low cost.

A bulletin is available from Dexter which presents results of the 3-year research program in a chart giving performance ratings. It is intended as an aid to the finisher in quickly selecting the softener most suitable to given conditions.

• U S Testing Develops Wool Tints

Four years of effort were recently culminated with an announcement by A L Brassell, president, United States Testing Company, Hoboken, N J, to the effect that a new line of all-purpose fugitive tints had been developed.

The new line, which will be distributed under the trade-name Blentex, was reportedly developed particularly for wool, but is said to also be advantageous for blends of fibers, such as nylon, Dacron, Acrilan, dynel, Vinyon, Orlon (Type 81), viscose, acetate and cotton.

Blentex tints are water-soluble, liquid dye concentrates that are readily fugitive in the usual mill-scouring treatment as well as to the prior steam-setting treatment, it is reported. They come in five colors (red, yellow, blue, orange and purple) and are available in 1-gallon cans, 5-gallon pails and 50-gallon drums.

Sold in concentrated form, the tints should be diluted with water (e g, 115 p Blentex to 98.5 water) when sprayed on stock or daubed on yarn. Other applications may call for its use in concentrated form.

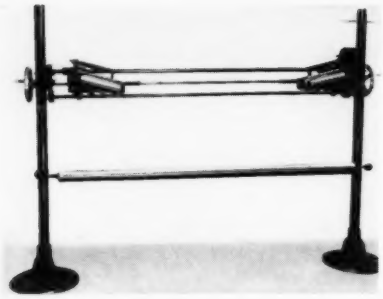
• Process for Nickel Coating Aluminum

Bart Laboratories Co, Inc, Belleville, N J, and Hamilton Standard Division of United Aircraft Corporation have jointly announced the development of a process for coating aluminum with nickel "to give a stress-free, hard, yet resilient coating". A synthetic rubber compound developed by Hamilton Standard is reportedly used to establish a bond between the aluminum and the nickel plate.

S G Bart, president of Bart Laboratories, has stated that the process (labeled Alni-Clad) combines the hardness and corrosion resistance of nickel with the advantages of aluminum. He points out that the bond between the organic synthetic base and the nickel has an extremely high adhesion or tensile strength and will stand up under a wide range of temperatures.

The bond material is sprayed onto aluminum to the required thickness. After drying, the piece is then plated with nickel by conventional means, the plate thickness depending upon requirements. It is estimated that a component can normally be "Alni-Clad" in approximately 24 hours.

Satisfactory results have been obtained with all aluminum alloys used to date, according to Mr Bart. Finished "Alni-Clad" pieces are said to have a hardness of 400-450 Vickers and a semi-bright surface, which can be polished chemically or mechanically to a high luster.



G, R & S Guider Stand

• Motor-Operated Guider Stands

Two new types of guider stands have been announced by the Guider, Roll and Service Company, Daytona Beach, Fla, one featuring a motor-speeded action of the carriages carrying the guider heads, and the other featuring a hand wheel with which the operator can widen or narrow the distance between the guider heads.

The motor-operated stand (see illustration) is equipped with the latest type Hetherington Mechanical Guider, as well as dual hand wheels which make it possible to operate the same stands manually from either side. In addition, switches on both sides control the movements of carriages and heads. It is reported that, when motor-operated, the carriages can be sped toward one another a distance of 40 inches in six seconds. Exact positioning is attained by means of an electric brake coincidentally operated with the motor, it is learned.

Robert Hetherington, owner, has announced that the company next plans to put stands on the market which narrow or widen the distance between heads by a motor controlled by a photo-electric tube. This type, the first installation of which is slated for June, is designed to anticipate the cloth width before it reaches the guider heads.

Two representatives have been named by the company—Joseph A King will cover New England and Canada from North Attleboro, Mass, and T W Kitchen will cover the South from Greenville, S C.

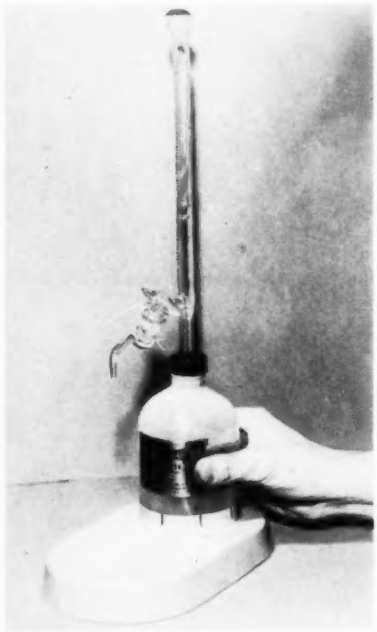
• "Squeez-O-Matic" Burette Unit

A burette unit featuring a plastic (polyethylene) reservoir, which requires only a squeeze to fill an automatic self-leveling burette, has been developed by Hall Laboratories, Inc, and is being sold through its associated companies—Hagen Corporation (323 Fourth Ave, Pittsburgh, Pa), Calgon, Inc, and The Buromin Company.

The "Squeeze-O-Matic" is said to be easy to use, as well as being a time-saver. Only one hand is needed, in contrast to older automatic burette assemblies, which require one for closing a tube orifice, the other for squeezing an aspirator bulb. Use of a plastic reservoir provides a container that is highly resistant to chemical attack and will not contaminate standard titrating solutions, it is stated.

Anoher feature of this unit is the special plastic base, which holds the plastic bottle and also provides a platform for beaker, flask or dish. A molded stopper arrangement for the plastic bottle is designed to hold the burette rigidly in position and provide a firm seal between bottle top and burette.

"Squeez-O-Matic" Burette Units are available in 10- and 25 ml sizes graduated to tenths of an ml.



10 ml "Squeez-O-Matic" Burette Unit

• Model 20 "Compax" pH Electrometer

A new approach to the precise measurement of pH is offered by Coleman Instruments, Inc, 318 Madison St, Maywood, Ill with their Model 20 "Compax" pH Electrometer, a self-contained, portable pH Electrometer combining the precision of the linear potentiometer with the simplicity of single dial operation.

Coleman lists the following features of the instrument: a "Flashing Signal" which eliminates meters, pointers, and "reset" knobs and establishes the reading point with pin point precision; batteries with a useful life of more than 1200 operating hours; complete protection against measurement errors due to depleted batteries, amplifier drift, or accidental misadjustment of controls; an exclusive electrode system that is automatically brought to operating position when the instrument cover is opened and returned to storage within the case when the cover is closed.

"Compax" pH Electrometer

All operations of standardization and measurement are reportedly accomplished with a single calibrated dial. The instrument is enclosed in an 8½" x 6⅜" x 4⅛" plastic case weighing 5½ lbs.

Bulletin B-225 gives complete details.

• Benzoic Acid by New Synthesis

With the expansion of facilities for the production of benzoic acid at Monsanto Chemical Company's John F Queeny plant in St Louis, the production of benzoic acid by an entirely new synthesis from basic raw materials is introduced in this country.

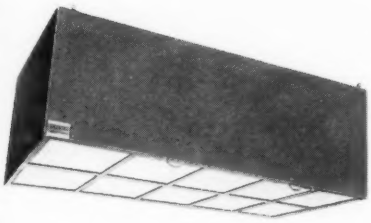
The new unit reportedly doubles the company's production of technical and USP grades of benzoic acid as well as Benthal, Monsanto's benzoic acid for the alkyd resins industry. Benzoic acid, technical, is used as an intermediate in the manufacture of dyes, as a mordant in calico printing and as a dispersing agent in the grinding of pigments.

• Garnet G Added to Spectrolenes

Spectrolene Garnet G, the eighth in the Spectrolene dyestuff line, has been added by the Hilton-Davis Chemical Company Division, in response to the "enthusiastic" reception accorded other members of the line, according to Nelson S Knaggs, vice-president in charge of sales.

The new color, when coupled with various naphthols reportedly produces shades of bordeaux, garnet and red violet, which retain good fastness to washing and light.

Spectrolene is a stabilized diazo compound developed by Hilton-Davis and introduced approximately a year ago.



BX 1014

BX848
Macbeth New Super Skylights

• Macbeth Color Matching Super Skylights

A new high intensity north sky daylight 2 to 3 times the intensity of standard Macbeth daylights is featured in each of the latest models in color matching skylights by the Macbeth Daylighting Corp, Newburgh, N Y. The models, BX848 and BX1014, are said to greatly increase color matching accuracy over the complete color range and especially in the popular dark colors and blacks.

The new skylights embody many refinements in design and construction, including improved glass for greater light diffusion.

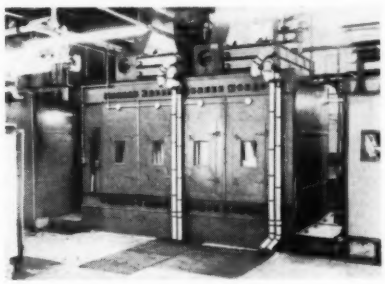
BX848 is especially recommended by the manufacturer for dyehouse service, with or without color matching booth. BX1014 is designed for shading room service where swatches or bolts of materials are matched or graded. Both produce horizon sunlight in addition to the new high intensity north sky daylight.

• "Cleanair" Steam Baker Said to Exhaust Air 100%

Better carbonizing and output of cleaner fabric by the new "Cleanair" Steam Baker (Riggs & Lombard, Lowell, Mass) is claimed by the manufacturer on the basis of the 100% exhaustion of the air used in baking (the air taking with it foreign matter and impurities). Function of the unit is to bake or carbonize vegetable matter in a fabric which has been treated with acid, so that such matter can be removed in a subsequent crushing operation.

The machine is divided into a series of vertical sections, the number varying according to requirements, with the cloth traveling over a series of rolls in vertical passes. Each section is equipped with a fin type heater and blower at the top. Sucked through the heater by the blower, air is pulled down through one section and up through the next, flowing in the opposite direction from the flow of goods, and finally exhausting at the top of the machine.

Built-in dance rolls are designed to automatically synchronize the speed of the baker with the speed of the dryer, which is set by hand. Cloth may be delivered from the steam baker to trucks by means of an open-width folder. Where a Continuous Crusher is used, the baker delivers the cloth direct to a scray, from which it is fed to the crusher in a continuous operation.



Cleanair Steam Baker

• Stainless Steel Tops for Lab Furniture

High resistance to the action of common laboratory reagents is a prime feature of the stainless steel tops for laboratory furniture now being offered by the Fisher Scientific Company, 717 Forbes St, Pittsburgh 19, Pa. The tops are manufactured in Fisher shops to fit basic models of Unitized Laboratory Furniture, sold exclusively by Fisher's five plants. It is reported that the stainless steel used contains over 30% nonferrous alloying materials.

Each top, supported by thick plywood sections, is made of one piece with an integral splashback and reagent shelf. All edges of the tops are a continuation of the upper surface and adjacent edges are clearly welded, it is reported. The front edge is rolled for protection of the worker and also forms a convenient drip edge on the underside. Concealed bolts and Neoprene strips close the joints between adjacent units in an assembly and produce a liquid-tight fit.

Mighty Midget Stirrer #3-6-9

• Multi-Speed Midget Stirrer

The Mighty Midget Stirrer 3-6-9, a new multi-speed laboratory unit, has been put into production by Laboratory Industries, Inc, 4710 West North Ave, Chicago 39, Ill.

Speeds of 300, 600 or 900 RPM may be pre-selected. The motor is series wound and reportedly pulls 65 watts. Horsepower is listed at 1/16.

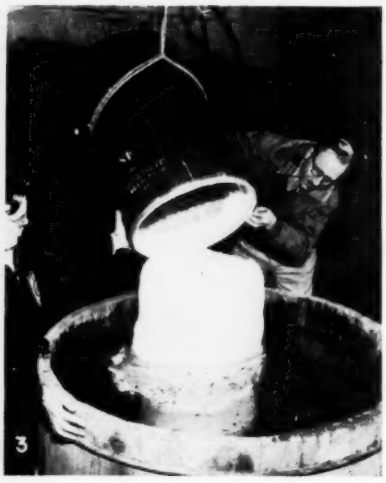
The "Mighty Midget" may be mounted in most any position and at any required center distance with the aid of a specially-designed 2-position mounting bracket. In the "normal" position, the center of gravity is below the support rod, which aids in the prevention of accidental turnovers and beaker breakage.

The unit comes complete with 3-jaw, self-adjusting chuck, 8' rubber-covered cord and plug, and 8" aluminum support rod. Net weight: 4 lbs. Stirring rods are of ¼" diameter. A Teflon-covered No-Vortex stirring rod 6" long may be used in place of the aluminum rods. (List price for the entire unit: $34.50).

• Monsanto Introduces New Series of Plastic Resins

The Lustrex X-700 resins, a new series of water-soluble, modified polymer plastic resins, were announced last month by the Monsanto Chemical Company at the 5th Annual Exposition of the Society of the Plastics Industry. Among many other applications, it is suggested that the series may find application for sizing, finishing, printing and coating textiles.

Outstanding characteristics of the resins include high heat-resistance, nonthermoplasticity and resistance to chemicals, oils and solvents. They are said to be finely-divided, free-flowing, off-white powders that dissolve readily in water to produce stable solutions covering a wide viscosity range.



Photos Illustrate Necessary Steps in Removing Rhonite 610 From New Fiber Containers.

• Rohm & Haas Solves Container Problem

A small hole and air pressure have solved a bothersome container problem for customers of Rohm & Haas Company, Philadelphia, Pa.

Some time ago, the company's Textile Division recognized the desirability of a new package for Rhonite 610, a monomeric urea-formaldehyde paste for rendering shrinkage control and crush resistance to rayons and cottons. Formerly, Rhonite 610 was put up in 41 gallon double-lacquered steel drums.

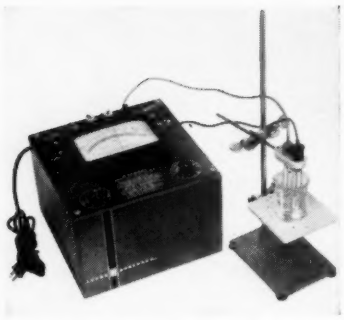
The Rohm & Haas packaging group, working with the Virginia Barrel Company of Chester, Pa, agreed that a fiber drum would serve as efficiently as steel, would be more convenient, and would not contaminate Rhonite through failure of a lacquer lining. To get the 400 pounds of semi-solid Rhonite out of a fiber drum provided a problem, however.

The answer proved fairly simple. A ½" hole is drilled in the bottom of the drum and plugged with cork. To remove the Rhonite, the cork is pulled and air pressure applied at the hole. The contents then slide gently into the mixing vat (see illustration). It is reported that ten pounds pressure is all that is required.

• Line-Operated pH Indicator and Vacuum Voltmeter

A line-operated pH Indicator and Vacuum Tube Voltmeter recently developed by Leeds & Northrup, Philadelphia, is said to be unaffected by normal fluctuations in line voltage or by zero drift of the amplifier. A converter-type instrument, its circuit reportedly employs d c to a c conversion, a c amplification, and conversion back to d c for voltage feedback. Conversion stabilizes zero; feedback stabilizes gain.

Used as a pH Indicator, the instrument reads directly in pH and reportedly makes



Leeds & Northrup A C pH Indicator

glass electrode measurements to within ±0.02 pH on grounded or ungrounded solutions. A continuous pH 0 to 14 scale is designed to eleminate range-changing. For manual lab use, temperature compensator is graduated from 0 to 100 C in 2 degree steps. If the instrument is to be used as a continuous indicator on industrial process pH, automatic temperature compensation can be provided, it is reported.

As a Vacuum Tube Voltmeter, the new indicator reportedly can be used with any high or low impedance electrode system which developes potentials within range of the instrument. External circuits can have up to 2000 megohms resistance, according to L & N. They further state that current drain does not exceed 1 x 10^{-12} ampere at null balance. Four additional voltage scales of 0 to +700, 0 to —700, 0 to +1400, and 0 to —1400 millivolts are available for redox, potential, and polarized current measurements.

Folder EM9-96(1) 350-951 contains specifications, illustrations, and other pertinent data on the instrument. Write to Leeds & Northrup Co, 4907 Stenton Ave, Philadelphia 44, Pa.

• Ultrasonic Viscosimeter

The "Ultra-Viscoson" for continuous, automatic viscosity measurement using ultrasonics has been announced by Rich-Roth Laboratories, 673 Connecticut Blvd, East Hartford 8, Conn.

A hermetically-sealed probe (about the size of a fountain pen), having no moving parts and reportedly operating to 650°F, 10,000 atmospheres pressure, is permanently installed in pipe lines, production kettles, tests tubes, beakers, etc. An electronic computer, which may be located as far as 1 mile from the probe, indicates viscosity of Newtonian materials from 0-50,000 centipoises x grams/cc in four decades (0/50/500/5,000/500,000), according to reports. Apparent viscosity of non-Newtonian materials may be measured over a larger range, it is stated. A connection to a recorder or controller provides continuous charts or automatic control.

• Medium-Duty Electric Tractor

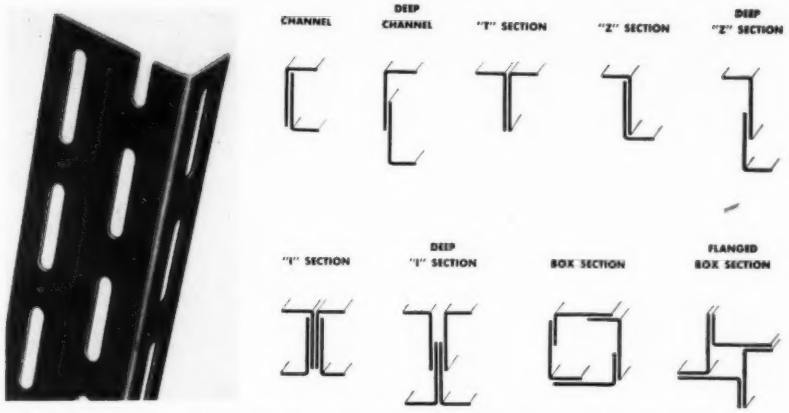
Model A-545, a new electric tractor in the medium-duty class, joins a line of predecessors in material handling.

This new 2-wheel drive unit, a product of the Mercury Manufacturing Company, 4044 South Halsted St, Chicago 9, Ill, is rated at 400 lb normal and 2000 lb maximum drawbar pull and, when powered by the specified 48-volt source, reportedly attains a light running speed of 7.5 mph.

A "tiller-bar" controls the four-wheel steering system. Travel, on the standard arrangement, is manually controlled by a three-speed snap-action mechanical contractor unit. However, foot acceleration is available where preferred.

Additional features include cushion-type tires (size 16¼x4 in, front, and 17¾x5 in, rear); semi-elliptical spring suspension; front and rear double-reduction spiral bevel and spur gearing; and unit-constructed power plant.

Model A-545 Electric Tractor



Standard DexAngle units (left) can be assembled as Channels, T-,Z-, and I-Sections, and Box Sections.

• All-Purpose Fabricating Unit

Acme Steel Company, 2840 Archer Avenue, Chicago 8, Ill, has available a supply of DexAngle, a 10-ft long, 3 x 1.5 x .080-in slotted-leg galvanized-steel angle for all-purpose industrial fabrication.

The lengthwise rows of slots in this unit are said to permit rapid assembly by bolting of shelving, bins, scaffolding, etc. A hacksaw and wrench are the only tools required for assembly, though the cutting operation can be speeded otherwise.

Diamond-shaped indentations at 3" intervals along the length of the angle aid in measuring and cutting by assuring automatic alignment of slots when the pieces are cut along them.

When used as uprights in lengths up to 5½ feet, the angles reportedly will support loads as high as 1200 lbs. Sections that can be made from DexAngle (see illustration) are said to be able to support loads as high as 2 tons. When used horizontally, concentrated loads from 90-3800 lb can reportedly be supported, depending upon the distance between the supports and the section constructed. When the load is evenly distributed, it is stated that these figures can be doubled.

DexAngle, which has found application in England, Canada and Australia under the trade name of Dexion, is sold by the package, each containing ten 10-ft lengths of angle and 75 nuts and bolts. Shipping weight is approximately 110 lb.

• New Process Said to Waterproof All Fabrics

It is learned that the government has granted patents to two new, related methods of waterproofing both natural and artificial fabrics so that they stand up to laundering better and are easier to handle. The inventor is Firth L Dennett, Midland, Mich, who reportedly assigned his patents (Nos 2,588,365-6) to the Dow Corning Corporation.

According to one patent, the material to be made water repellent is wetted with a mixture of two organosiloxane polymers and then heated from 100-475°F for a short period. It is reported that this treatment renders the material substantially water-repellent even after laundering or dry cleaning. It is also said to eliminate or materially reduce mark-offs.

The second method uses a mixture of three organosiloxane polymers, but the same heat treatment. The method is said to eliminate the problem of slipperiness, which affects the handling and cutting of rayon and nylon.

• American Maize-Products Installs New Starch Flash Dryer

A starch flash dryer, built almost entirely of stainless steel, was installed recently in the plant of the American Maize-Products Company, Roby, Ind, marking the first large-scale commercial application of the principal of flash drying to starch in the corn refining industry.

The unit, believed to be the largest modern starch dryer in the world, is expected to increase the Company's starch drying capacity by more than 50%.

• Improved Dye House Shoe

A wooden sole shoe, designed by Stahmer Shoe Company, Davenport, Iowa, for protection of workers' feet in the dye house or other wet-processing departments, reportedly has proven satisfactory under severe and complete tests.

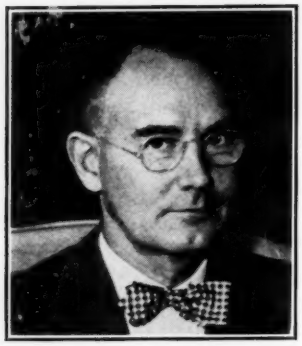
Designed for protection against water and chemicals, the shoes have a 1½-inch thick close-grain sanded maple sole. For comfort and ease in walking, the sole is shaped to the foot and covered with a soft cushion inner lining. Copper wire is used to fasten the sole to the heavy leather tops. Additional reinforcement is attained with double stitching and rivets at the points of strain.

Stahmer Dye Room Shoe

In the case of slippery floors, a metal rail can be attached to the sole and heel for positive grip.

Stahmer Dye Room Shoes are sold directly to textile manufacturers in sizes from 5 to 12. Larger sizes are available on special order. A catalog will be sent on request.

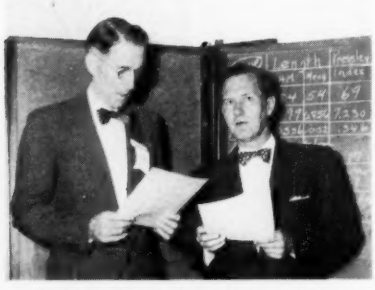
NAMES IN THE NEWS



J Ebert Butterworth

AT THE annual meeting in March, J EBERT BUTTERWORTH was elected president of H W Butterworth & Sons Company, succeeding HARRY W BUTTERWORTH, JR, who became chairman of the board.

Mr Butterworth has served as vice-president and secretary of the firm and has handled export sales. With J Hillman Zahn, he opened the company's Southern office in 1923 and was its representative there from 1923 to 1930. He was in the home office from 1930 to 1941 upon returning from service with the Army as a colonel.



J Fred O'Kelly (left), of the Mississippi Agricultural Experiment Station, State College, and A Mason DuPre, Jr, (right) special assistant to the director of the Southern Regional Research Laboratory, presided at a conference in New Orleans on March 3 that stressed "Cotton Research in the Defense Effort." The conference is an annual affair at which scientists from Southern State Experimental Stations and SRRL exchange information on their respective fields of research on agricultural commodities.

ACCORDING to a recent announcement by H F Roderick, general manager, Michigan Alkali Division, Wyandotte Chemicals Corporation, JOHN L CRAIG has been named a sales representative assigned to the Division's Cincinnati office.

Mr Craig joined Wyandotte's Chemicals' Development Dept in 1949. Prior to that time, he was with Du Pont, where he worked on coated fabrics and finishes at their Newburgh and Philadelphia plants.

DIVISION of responsibilities by markets, rather than on a product basis, within the Sales and Technical Departments of Antara Chemicals, resulted in a number of important home office personnel changes and appointments on April 1.

DR P M KIRK, formerly manager of the Product Development Department of General Aniline Works (a division of General Aniline & Film Corporation), has become assistant sales manager in charge of direct sales.

T R MOORE is now assistant sales manager in charge of product line & sales service.

WALTER R BRANDT, formerly a technical salesman in the Boston Branch, has become market manager of textile, leather and lake chemicals.

J M CLONEY, formerly Antara representative on the West Coast, becomes market manager of industrial chemicals.

DR C E STEVENS continues as manager of Antara's Technical Department, along with DR C M KNOWLES as technical manager for industrial chemicals and C A BERGMAN, as technical manager of textile chemicals.

Harold G Shelton, Antara sales manager, points out that Antara's original organization was set up on a product basis, but that the division's experience has pointed to the desirability of dividing responsibilities by markets in both sales and the technical department, with the objective of better servicing the field organizations.

Dr Kirk joined GAF in 1942 as a development chemist and in 1948 was appointed manager of the corporation's Product Development Department. Mr Brandt joined the General Dyestuff Corporation in 1931 as a laboratory chemist. After seven years in the Boston laboratory he became a fine chemicals salesman, handling both textile and non-textile accounts in New England.

DR LYMAN E FOURT, who has been with the Harris Research Laboratories since their inception in 1945, has been named manager of physics research at the Washington, D C, Laboratories. Previous to 1945, Dr Fourt was associated with Dr Harris as a research fellow of the Textile Foundation at the National Bureau of Standards.

Fred Ebersole

DR FRED EBERSOLE, formerly production control manager at the Grasselli plant of the General Aniline Works Division, General Aniline & Film Corporation, has been named to the newly-created post of product line and inventory control manager. He will serve both the General Aniline Works Division and the General Dyestuff Corporation in his new capacity and will be located at the New York offices.

Francis Charles

FRANCIS CHARLES moves up to the position of production control manager at Grasselli after having joined General Aniline more than two years ago as a staff consultant to the production control manager and later advancing to supervisor of production planning and control.

I MELVILLE STEIN, executive vice president of Leeds & Northrup Company, Philadelphia, has been elevated to the grade of Fellow by the American Society of Mechanical Engineers.

D Robert Yarnall, past president of the society, presented the certificate of award to Mr Stein on March 25 at the monthly meeting of the Philadelphia chapter.

Once an associate of the late Thomas A Edison, Mr Stein has been connected with Leeds & Northrup for 33 years.

Arthur S Davis

A C Horn

Richard C Dowling

ARTHUR S DAVIS has been appointed manager of Hilton-Davis Sales Co, Boston, Mass, the newly-formed distribution and service center of textile dyestuffs in northeastern U S of The Hilton-Davis Chemical Company Division of Cincinnati.

Organized earlier this year, Hilton-Davis Sales Co purchased a six-story building at 2-4 Storer Street in Boston to serve as headquarters in the area. In addition to providing rapid delivery of dyestuffs from Maine to Delaware, the firm maintains an extensive research and service laboratory. Complete stocks of all Hilton-Davis dyes are stored in the building.

Prior to assuming his new post, Mr Davis had been associated in various research and technical sales capacities with the Cincinnati chemical concern. Previously he had been plant superintendent of American Waterproofing Corp and in the technical sales division of Procter & Gamble Inc. From 1941 to 1947, he was quality control engineer and laboratory supervisor with several chemical manufacturers and textile mills.

THE election of T T MILLER as vice president—marketing, and GEORGE W BLACKWOOD to be vice president general sales manager by the directors of Dewey and Almy Chemical Co, has been announced by Hugh S Ferguson, executive vice-president.

Mr Miller, who has been vice president—sales for several years, will start his new assignment by devoting most of his time to developing and expanding the company's position in the organic chemicals field. He will also continue to direct sales activities of the shoe and printing products divisions of the company as well as marketing research.

Mr Blackwood, who managed the company's rubber specialties division before being named general sales manager two years ago, will be responsible for sales of the company's container products, adhesives and coatings, construction specialties and soda lime divisions in addition to supervising the rubber specialties division.

A C HORN, chairman of the executive committee of the Sun Chemical Corp, has been named honorary chairman of the 1952 Joint Defense Appeal campaign.

The JDA is currently campaigning for $5,000,000 nationally to support the programs of the American Jewish Committee and the Anti-Defamation League of B'nai B'rith. Half of the national goal is sought in the New York metropolitan area.

Mr Horn is an honorary vice-chairman of the ADL.

RECENT moves within the Monsanto Chemical Company include the following:

Plastic Division—HOWARD A GRAY, former research group leader for surface coatings at the Merrimac Division, has been transferred to the vinyl chloride resins technical sales group of this Division. At the Merrimac Division (which he joined in 1935), he also served as administrative assistant to the research director.

Merrimac Division—FRANK C DONOFRIO has been appointed a textile chemical sales engineer. For several years Mr Donofrio was engaged in application research and technical service for a manufacturer of textile chemical resins.

Phosphate Division—DR LOUIS FERNANDEZ, formerly group leader in this Division's research department, has transferred to its technical sales department, where he will specialize in sales problems related to the formulation and application of the Division's synthetic detergents. Dr Fernandez joined Monsanto in 1949 as a research chemist at the Anniston laboratories and was appointed a group leader in 1951.

LOUIS J VILLA has replaced ANTOINETTE FALCONE as representative for Merchandise Standards and Specification Development for the Associated Merchandising Corporation. Mr Villa is presently with Montgomery Ward, New York, as supervisor of their textile laboratories.

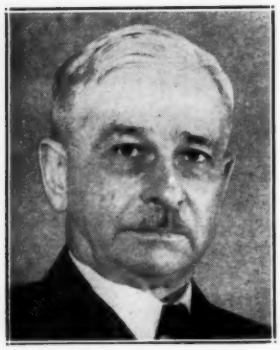
PAULDEN LABORATORIES, INC, Carlstadt, N J, have announced the addition of RICHARD C DOWLING to their technical sales staff. Mr Dowling has had approximately twenty years of technical, mill and sales experience in the printing and dyeing field. He will cover South Jersey, Pennsylvania, Delaware and Maryland.

BARRY T LEITHEAD, president of Cluett, Peabody & Co, Inc, has been named a member of the Industrial Council organized recently at Rensselaer Polytechnic Institute.

FROM the Du Pont Company's Organic Chemicals Department it is learned that ROBERT H MOYER, development manager of intermediate sales since 1950, has been placed on temporary loan to the Chemicals Division of the National Production Authority. During his absence, THOMAS MARTONE, JR will act in Mr Moyer's capacity.

Three new appoinments affecting the Department's sales personnel have also been announced. HYMAN H FIELD has been named assistant manager of the Charlotte office, JAMES D SANDRIDGE has been named assistant to the manager, and M D HANEY, JR, has been appointed sales supervisor, Fine Chemicals.

In the Textile Fibers Department, the Manufacturing Division for "Dacron" polyester fiber has a new production manager in DR HOWARD A SWANK. This division was recently organized to handle the manufacture of Du Pont's newest synthetic fiber, which is scheduled for commercial production next year. EDGAR H BLECKWELL, manager of the Chattanooga nylon plant, succeeds Dr Swank as nylon technical manager, while WILLIAM H THALHEIMER, manager of the Yerkes rayon plant at Buffalo succeeds Mr Thalheimer. DR ROLLIN F CONAWAY, assistant manager of the Spruance rayon plant at Richmond becomes manager of the Yerkes plant. All changes were effective March 17th.



Paul Nawiasky

DR PAUL NAWIASKY, one of the country's leading dyestuff chemists and holder of more than 500 U S and European patents, was guest of honor at a testimonial dinner on March 28th at the Elizabeth Carteret Hotel, Elizabeth, N J, on the occasion of his retirement from General Aniline and Film Corporation. He had been head of the Research Dept and more recently associate manager of the Process Development Department at the Company's Grasselli plant.

Among those who paid tribute to the noted scientist at the dinner were General Aniline Vice Presidents John C Franklin and Chandler T White, Acting Plant Manager Russell L McKnight, Process Development Manager Dr Melvin R Stevinson, and Dr Fred Ebersole, Dr Jack Bruun and Dr Jesse Werner, home office executive who had been closely associated with the retiring chemist in his research and development work. Dr Ebersole was toast master.

Born in Stuttgart, Germany, Dr Nawiasky received his PhD from the University of Berlin in 1904. He was the first student of Professor Otto Diels, recently awarded the Nobel prize in organic chemistry. After teaching chemistry for several years at the University, Dr Nawiasky joined Badische Aniline and Soda Fabrik in 1907, and in the next 29 years became recognized as one of Europe's leading industrial research chemists, specializing in vat colors. In 1936 he left a post as head of the Alizarine Laboratory at Ludwigshafen, Germany, to join General Aniline at Grasselli to organize a research laboratory. Since that time he has received about 100 United States patents, most of them pertaining to vat and related dyestuffs, and some in the field of color formers for color photography, and others in the field of surface active agents.

WILLIAM A SCHNELL, sales engineer for 40 years with Link Belt Co, is now associated with the Sales Staff of Consolidated Products Co, Inc, rebuilt chemical machinery dealers.

Louis S Graichen

LOUIS S GRAICHEN has joined the Textile Colors Division of Interchemical Corporation as a technical representative and will make his headquarters at the New England District Office, 11 Winthrop Avenue, Pawtucket, R I. Mr Graichen has had wide experience in the textile printing, dyeing, and finishing industry, having been with Allied Textile Printers, Glasgo Finishing Co, and Greenville Finishing Co.

APPOINTMENT of three new technical sales representatives for the latex and dispersions sales department of the Naugatuck Chemical Division, United States Rubber Company, was recently announced by A W Holmberg, sales manager.

D LEETE KEEFER has been transferred from Naugatuck, Conn, to Philadelphia, Pa, as technical representative for the Philadelphia area. He replaces GERALD L DENNIS who has been sent to Los Angeles as branch manager.

WILLIAM J CURTIN, formerly assistant to the sales manager, was appointed technical representative in the Naugatuck area, replacing Mr Keefer. He will make his headquarters in the division's main offices in Naugatuck, Conn. Succeeding Mr Curtin as assistant to the sales manager will be LAWRENCE H BRUCE, formerly a process engineer in the Naugatuck Chemical plant.

THREE appointees to the research and development center joined the Chemstrand Corporation in March to supplement a group of technicians who have served as the nucleus in this phase of the Company's Acrilan project at Decatur. They include, S JACK DAVIS, formerly associated with Callaway Mills; FRANK B LUTZ, recently with Millville Manufacturing Company, and CHARLES H APPERSON, previously with Tennessee Coal & Iron Company. They will be associated with JOSEPH T CHESNUTT, WILLIAM S MOORE, CLOYCE L PURDOM and CARLTON D WHITT.

Ray B Steeves

COMMONWEALTH Color & Chemical Co, New York, N Y, recently engaged RAY B STEEVES as a regular member of their sales staff in some of the Midwestern States. Mr Steeves previously had served as overser of dying and finishing at Lincolnsfield Worsted Mills.

THE following technical appointments have been announced by Hooker Electrochemical Company, Niagara Falls, N Y:

WILMA M VOGT has been employed as a chemist in the Development and Research Department; ORVILLE R HICKS has joined the Engineering Department as a draftsman; and FRANK L ECHELBERGER is now working as a chemist in the Works Laboratory.

NEW YORK and New Jersey Lubricant Company has announced the appointment of LEWIS W THOMASON, JR as Southern District Manager, succeeding the late FALLS L THOMASON.

Mr Thomason brings to his duties nearly twenty years of mill experience and management. He had been associated with Cannon Mills for over seventeen years, most recently as superintendent of synthetics.

In his new post, Mr Thomason will supervise sales and service of nonfluid oil to the textile industry from his headquarters in Charlotte, N C.

Lewis W Thomason, Jr

Joseph B Evans

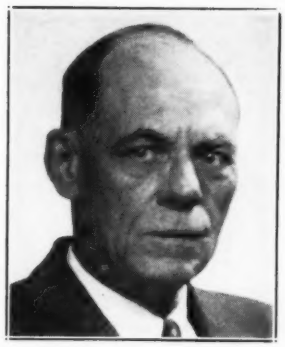
JOSEPH B EVANS, director of sales for the Dexter Chemical Corporation, has been appointed to the Regional Advisory Committee, Small Defense Plants Administration. This agency was established to further small business participation in the National Mobilization program. The committee to which Mr Evans has been assigned will serve Region II, including the States of New York and New Jersey. Ultimately, there are to be thirteen regional offices throughout the nation.

Mr Evans came to his present business post when Dexter, in 1945, acquired the Celludye Corporation, a pigment dyestuff manufacturer. He was president and technical director of this firm. Mr Evans is also an officer and director of Evans Brothers, Inc, and the David L Moss Company.

RICHARD M BARNHOLT has been named sales manager for Triangle Finishing Corp, Johnstown, N Y, where he will have charge of the merchandising and selling of all of the company's processes for military and industrial warp knit and other fabrics, as well as underwear and outerwear fabrics and materials for curtains and draperies.

Mr Barnholt comes to his new assignment from MKM Knitting Mills, Inc, with whom he has been associated for seven years. Prior to that, he was with Du Pont, where he was associated with the original nylon research program.

Richard M Barnholt



Mangum Webb

MANGUM WEBB, a member of Chemical Construction Corporation since its founding in 1914, has been elected vice president of the firm. In the past he served as Far Eastern Representative in Shanghai from 1935-1936, as procurement director during World War II, and later, as assistant sales manager and director of engineering of the Ion Exchange Department of American Cyanamid Company, the parent organization. Since 1949 Mr Webb has been sales manager of Chemical Construction.

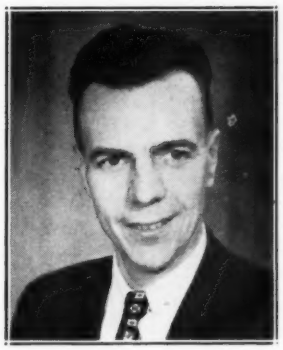
JESSIE MAY SMITH has been named administrative assistant to the president of American Resinous Chemicals Corporation, Peabody, Mass. Miss Smith has been with ARCC since 1944, and until recently handled sales promotion correspondence.

LEE STUART, formerly with the National Lead Company and the National Security Industrial Association, has joined the Market Development Department of Heyden Chemical Corporation.

DR G M SIEGER, who has been with the Research Department of Heyden, has been transferred to the Market Development Department.

AMERICAN CYANAMID COMPANY has announced the appointment of RICHARD C RUFFER as manager of its Valdosta, Ga, plant, producer of rosin sizes, gum and tall oil. Mr Ruffer will also be responsible for all operations carried out by Newport Industries for Cyanamid at Pensacola, Fla, and DeQuincy, La. The appointment frees THOMAS PACEY, JR, formerly manager of both the Valdosta and the Georgetown, S C, plants, to devote his full time to the Georgetown operation.

Prior to this appointment, Mr Ruffer was production supervisor at the Woodbridge, N J, plant for two years, and served in the same capacity at the Kalamazoo, Mich plant for five years.



Frank A Edmonds

From Cyanamid's Industrial Chemicals Division it is announced that application and customer service facilities for leather chemicals will be established in its consolidated office and warehouse building in Chicago, as part of a new overall plan by which the Company hopes to improve its service to customers in the leather field. FRANK A EDMONDS has been named to head the new lab, and will assume his new position on May 1st.

In conjunction with this move, the Company reportedly will discontinue the operation of leather chemicals application facilities at its Stamford, Conn, Laboratories, though these laboratories will continue to make available results of basic research applicable to the leather industry.

The early part of Mr Edmond's 17-year tannery career was devoted to the organization of a control and development laboratory, where he worked on a diversified line of leathers. For the past few years, he has been supervising production.

Also from the Industrial Chemicals Division it is announced that J M McNAMEE has been named sales representative in the Georgia-Florida district. Mr McNamee had been serving as a technical representative for the Synthetic Organic Chemicals Department in New York.

PERCY HELIE, a member of Charles W Berg Laboratories, Philadelphia, for the past 13 years, has been appointed their general sales manager. Mr Helie went with Berg Laboratories as a sales representative after spending twenty years in the textile industry.

BRUCE S GALBRAITH has been appointed technical sales representative of the Fungicide Division of Nuodex Products Co, Inc. Mr Galbraith will have his headquarters at the company's Elizabeth offices and will contact the textile trade, rendering technical assistance to users of fungicides. He was previously a sales representative for American Agricultural Chemical Co.

ROBERT M TRUE has been appointed West Coast manager for General Dyestuff Corp, succeeding H A DES MARAIS, who has resigned effective May 1. Formerly GDC representative in Oregon and Washington, Mr True will make his new headquarters at 37 Clementina Street, San Francisco.

Mr True spent several years in the pulp and paper industry as a technician and later in production management before joining GDC. He is currently secretary of the Pacific Northwest Section, AATCC.

THE Du Pont Company has announced the retirement of one of the world's leading vat dye specialists, JOSEPH DEINET, after more than 25 years continuous service.

A research chemist in the anthraquinone division of Jackson Laboratory, Deepwater Point, N J, Mr Deinet is one of the few remaining pioneer anthraquinone vat dye chemists, his work spanning 46 of the 50 years in which anthraquinone vat colors have been known. He was the youngest of a group of research men who became world-renowned for their contributions to dye chemistry, including Schmidt, Kugel, Tomaschewski, Unger, Raeder, and Vollman.

Born in Elberfeld, Germany, in 1887, Mr Deinet was graduated from the Technische Hochschule für Chemie und Textil at Barmen, Germany. Starting his dyestuffs career in 1906 as a personal assistant to the director of the Bayer Company's research laboratory at Elberfeld, he spent the next nine years pioneering in the discovery and first preparation of a number of new dyestuffs and in particular many vat dyes which were to become so important in later years. It was because of this early pioneering work that a "Modern Pioneer" award was granted to Mr Deinet in 1940 by the National Association of Manufacturers.

At the time of his first work on vat dyes there were only about six important ones known. The first new vat dye discovered by Mr Deinet came to light only about two months after his employment at Bayer. It was later to become known as Algol Brown B.

In the following year a number of new Algols were discovered, these being variously substituted benzoylaminoanthraquinones and varying in shade from yellow through to blue. Most of these were patented in Germany, the United States and Great Britain and were the forerunners of a long series of Algol colors which have been produced and utilized since that time.

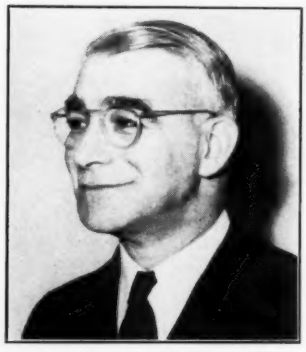
For a brief period after the first World War, Mr Deinet utilized his knowledge of dyes and dyeing methods by setting up a business involving the dyeing of cotton yarn and piece goods. In 1923 he joined the L B Holliday Company, Ltd, of Huddersfield, England, where he was engaged as a chemist in research and development of anthracene blues for wool.

In 1927 he came to the United States and joined the Newport Chemical Company of Milwaukee, Wis, which became part of the Du Pont Company in 1931. Since 1938 he has been located at Jackson Laboratory, where he has continued his research in the discovery and early-stage development of new vat colors, supplying some of our fastest colors as we know them today.

Numerous patents have been granted on Mr Deinet's inventions in the dyestuffs field. Among his most important discoveries are an improved process for dichloroindanthrone (blue) and novel dyes of the "Ponsol" group as well as certain "Leucosol" browns and yellows.

Mr Deinet and his wife, the former Katherine Roxin, live in Glassboro, N J. They have one son, Adolph, who is now a research chemist for the Heyden Chemical Corp at Garfield, N J.

OBITUARY



Hyman P Selya

HYMAN P SELYA

FUNERAL services were held in Boston on March 31st for Hyman P Selya, 54, partner in the Sagamore Color & Chemical Company (Boston).

Mr Selya, active for many years in the Northern New England Section, AATCC, was a member of the Executive Committee for the forthcoming National Convention of that organization. He was serving as Chairman of the Entertainment Committee. Mr Selya was also a past president of the Drysalters Club.

Initially, Mr Selya was employed as a chemist for F E Atteaux Company following his graduation from MIT in 1919. He later joined with Adolf Walz to form Sagamore Color & Chemical.

He is survived by his widow, a son and daughter, two brothers and a sister.

TECHNICAL LITERATURE

Papers on Evaluation of Soaps and Detergents (STP No 115)

American Society for Testing Materials
1916 Race Street, Philadelphia, Pa
Price: $1.50.

These significant papers, sponsored by ASTM Committee D-12 on Soaps and Other Detergents at 1951 meetings in New York, N Y, present new techniques for evaluation of soaps and detergents. Although literature is replete with methods, the ones used frequently tend to measure either the individual properties or the combined properties of a material with the result that it has been difficult to obtain agreement upon the methods for evaluation. This group of papers was presented to further the exchange of information on procedures for making such evaluations.

The first part of the compilation—after an Introduction by J C Harris of the Monsanto Chemical Co (Chairman of Committee D-12) — contains the following papers:

Practical Evaluation of Soiled Test Pieces—R B Mitchell, American Institute of Laundering; *Measurement of the Adsorption of Anion-Active Detergents by Materials Commonly Washed*—W A Fessler, The Solvay Process Div, Allied Chemical and Dye Corp; *Laboratory Performance Test for Detergents in Continuous Wool Scouring*—E A Leonard, Technical Laboratories Div, Alexander Smith and Sons Carpet Co; *A Metal Cleaning Test Using Radioactive Stearic Acid as Soil*—J W Hensley, H A Skinner, and H R Suter, Wyandotte Chemicals Corp; *An In-Vivo Method for Determining the Degerming Efficiency of Soaps Containing Hexachlorophene*—A R Cade, Research Laboratories, Sindar Corp.

The second part on Wetting Test Methods, developed by Subcommittee T-5 on Physical Testing, includes the following paper and summaries of test procedures:

The Mechanism of the Wetting of Textiles—I J Gruntfest, Research Laboratories, Rohm and Haas Co; *General Summary*—Leonard Shapiro, Synthron, Inc; *The Draves (Weighted Skein) Wetting Test Method*—C Z Draves, General Dyestuff Corp; *The Tape Wetting Test Method*—Leonard Shapiro, Synthron, Inc; *The Canvas Disk Method*—O M Morgan, National Aniline Div, Allied Chemical & Dye Corp; *The Hydrometer Wetting Test Method*—H B Walker, E F Houghton & Co.

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